

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

DIRECTOR'S OFFICE

ELEVATORS

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(By authority conferred on the elevator safety board by section 3 of 1976 PA 333, and section 8 of 1967 PA 227, and sections 7, 9, and 387 of 1965 PA 380, and Executive Reorganization Order No. 1996-2, MCL 338.2153, 408.808, 16.107, 16.109, 16.487, and 445.2001)

R 408.7001, R 408.7002, R 408.7003, R 408.7004, R 408.7005, R 408.7006, R 408.7007, R 408.7008, R 408.7009, R 408.7010, R 408.7011, R 408.7012, R 408.7013, R 408.7014, R 408.7015, R 408.7016, R 408.7017, R 408.7018, R 408.7019, R 408.7020, R 408.7021, R 408.7022, R 408.7023, R 408.7024, R 408.7025, R 408.7026, R 408.7027, R 408.7028, R 408.7029, R 408.7030, R 408.7031, R 408.7032, R 408.7033, R 408.7034, R 408.7035, R 408.7036, R 408.7037, R 408.7038, R 408.7039, R 408.7040, R 408.7041, R 408.7042, R 408.7043, R 408.7044, R 408.7045, R 408.7046, R 408.7047, R 408.7048, R 408.7049, R 408.7050, R 408.7051, R 408.7052, R 408.7053, R 408.7054, R 408.7055, R 408.7056, R 408.7057, R 408.7058, R 408.7059, R 408.7060, R 408.7061, R 408.7062, R 408.7063, R 408.7064, R 408.7065, R 408.7066, R 408.7067, R 408.7068, R 408.7069, R 408.7070, R 408.7071, R 408.7072, R 408.7073, R 408.7074, R 408.7075, R 408.7076, R 408.7077, R 408.7078, R 408.7079, R 408.7080, R 408.7081, R 408.7082, R 408.7083, R 408.7084, R 408.7085, R 408.7086, R 408.7087, R 408.7088, R 408.7089, R 408.7090, R 408.7091, R 408.7092, R 408.7093, R 408.7094, R 408.7095, R 408.7096, R 408.7097, R 408.7098, R 408.7099, R 408.7100, R 408.7101, R 408.7102, are added to the code and R 408.8101, R 408.8103, R 408.8108, R 408.8111, R 408.8121, R 408.8122, R 408.8123, R 408.8124, R 408.8131, R 408.8132, R 408.8133, R 408.8134, R 408.8135, R 408.8136, R 408.8137, R 408.8138, R 408.8139, R 408.8141, R 408.8145, R 408.8149, R 408.8150, R 408.8151, R 408.8152, R 408.8153, R 408.8161, R 408.8171, R 408.8201, R 408.8202, R 408.8203, R 408.8205, R 408.8206, R 408.8211, R 408.8212, R 408.8213, R 408.8214, R 408.8215, R 408.8216, R 408.8217, R 408.8218, R 408.8219, R 408.8220, R 408.8221, R 408.8222, R 408.8223, R 408.8224, R 408.8225, R 408.8226, R 408.8227, R 408.8228, R 408.8229, R 408.8230, R 408.8231, R 408.8232, R 408.8233, R 408.8234, R 408.8235, R 408.8236, R 408.8237, R 408.8238, R 408.8241, R 408.8242, R 408.8243, R 408.8244, R 408.8245, R 408.8246, R 408.8247, R 408.8248, R 408.8249, R 408.8250, R 408.8251, R 408.8252, R 408.8253, R 408.8254, R 408.8255, R 408.8256, R 408.8257, R 408.8258, R 408.8259, R 408.8260, R 408.8261, R 408.8262, R 408.8263, R 408.8264, R 408.8265, R 408.8266, R 408.8267, R 408.8268, R 408.8269, R 408.8270, R 408.8271, R 408.8281, R 408.8282, R 408.8283, R 408.8284, R 408.8285, R 408.8286, R 408.8287, R 408.8288, R 408.8289, R 408.8290, R 408.8291, R 408.8292, R 408.8293, R 408.8294, R 408.8295, R 408.8296, R 408.8301, R 408.8302, R 408.8303, R 408.8304, R 408.8305, R 408.8306, R 408.8307, R 408.8308, R 408.8309, R 408.8310, R 408.8311, R 408.8312, R 408.8313, R

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CHAPTER 1. GENERAL PROVISIONS

R 408.7001 Scope.

Rule 1. These rules establish administrative and operational procedures for implementation of the elevator safety act of 1967. The rules establish, for protection of the general public, minimum safety requirements for inspection, construction, installation, alteration, maintenance, repair, and operation of elevators.

R 408.7002 Definitions.

Rule 2. (1) As used in these rules:

(a) "Act" means 1967 PA 227, MCL 408.801 et seq. and known as the elevator safety board act.

(b) "Belt manlift" means a power-driven endless belt which has steps and handholds and which is used to transport persons in a vertical direction through successive floors or levels of a building or structure.

(c) "Department" means the department of consumer and industry services.

(d) "Electrical-powered, 1-man elevator" means an elevator that has a car platform area of not more than 5 square feet, a rated load of not more than 300

pounds, and a rated speed of not more than 100 feet per minute. It is for the exclusive use of certain designated operating and maintenance employees and is installed in any of the following structures:

- (i) A grain or feed mill.
 - (ii) A chemical or alcohol distillery.
 - (iii) A cement storage tower.
 - (iv) A radio tower.
 - (v) A similar structure that is not accessible to the general public.
 - (e) "Examination" means a survey of the design and construction of elevators or elevator equipment by a dealer in elevators or elevator equipment or an approved insurance company.
 - (f) "Hand-powered, 1-man elevator" means an elevator which has a car platform area of not more than 5 square feet, which has a rated load of not more than 300 pounds, and which is operated from the car only by pulling on a stationary rope that is located in the hoistway and passing through or adjacent to the car platform. The elevator is for the exclusive use of certain designated operating and maintenance employees and is installed in a grain or feed mill or a similar structure that is not accessible to the general public.
 - (g) "Inspection" means the official determination by a general inspector of the condition of all parts of equipment on which the safe operation of an elevator depends.
 - (h) "Private residence" means any elevating device installed in or at a private residence or installed in a building as a means of access to a private residence within such building, provided the elevator is installed so that it is not accessible to the general public or to other occupants in the building. The use is restricted to the owner and the owner's immediate family and nonpaying guests. All other elevating device installations shall be classified as commercial.
 - (i) "Special elevating device" includes other lifting or lowering apparatus which is guided as provided in section 3 of the act.
 - (j) "Temporary inspection" means the inspection of a permanent elevator that is to be used on a temporary basis.
- (2) Terms defined in the act have the same meanings when used in these rules.

R 408.7003 Applicability of national standards.

Rule 3. (1) The standards contained in the American society of mechanical engineers (ASME) safety code for elevators and escalators, ASME A17.1-2000, and the safety code standard for platform lifts and stairway chairlifts, ASME A18.1-1999 and ASME A18.1A-2001 addenda, hereinafter referred to as "code," are adopted in these rules by reference as rules for elevators in this state, except as set forth in subrule (2) of this rule. The codes are adopted by reference in these rules and are available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society of Mechanical Engineers, 22 Law Drive, Box 2900, Fairfield, New Jersey 07007-2900, at a cost as of the time of adoption of these amendatory rules of \$175.00 and \$54.00 respectively. All references to NFPA 70 mean the Michigan Electrical Code. The Michigan

Electrical Code is available for inspection or may be purchased from the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, at a cost as of the time of adoption of these amendatory rules of \$53.00 each.

(2) The following sections of the ASME A17.1-2000 code are not adopted in these rules: 2.5.1.5.3, 2.8.2.3.2, 2.11.1.3, 2.11.1.4, 2.11.7.2, 2.14.2.2(f), 2.14.2.6, 2.14.5.8.2, 2.16.5.1.3, 2.22.2, 2.26.1.5, 2.26.4.2, 3.19.5.2, 5.3.1.1.1, 5.3.1.1.2, 5.3.1.1.3, 5.3.1.1.4, 5.3.1.2.1, 5.3.1.14.3, 5.4.10.2, 8.6.5.8, 8.6.10.4, 8.10.1.1.3, 8.11.1.1, 8.11.1.1.1, 8.11.1.1.2. The following sections of the ASME A18.1-2001 code are not adopted in these rules: 2.1.2, 2.1.3, 2.10.2, 3.10.2, 10.1.1, 10.1.2, 10.1.3.3, 10.2.1.

R 408.7004 Registration of elevators.

Rule 4. An elevator shall be registered by the owner or user stating the location, type, capacity, name of manufacturer, and purpose for which it is used. This registration shall be made on a form furnished by the department.

R 408.7005 Identification plates and tags.

Rule 5. (1) The holder of a certificate of operation shall permanently attach to the elevator in an approved area an identification plate showing the rated load and the serial number of each elevator.

(2) One serial number tag shall be furnished and shall be permanently attached to the elevator machine controller.

(3) Identification plates and tags shall be furnished by the department and remain the property of the department.

R 408.7006 Accident reports.

Rule 6. The holder of a certificate of operation shall notify the department within 48 hours of every accident involving personal injury or damage to the elevator. The department may investigate all such accidents.

R 408.7007 Responsibility for elevator operation and maintenance.

Rule 7. (1) Responsibility for the operation and maintenance of elevators shall be as follows:

(a) The person, firm, or corporation installing, repairing, relocating, or altering an elevator shall be responsible for its operation and maintenance until the certificate of operation is issued, except as provided for in R 408.7012 of these rules and shall be responsible for all tests of new, repaired, relocated, and altered equipment until the certificate of operation is issued.

(b) The holder of a certificate of operation or duly appointed agent shall be responsible for the safe operation and proper maintenance of the elevator. The holder of the certificate of operation shall be responsible for all periodic inspections and tests, securing the renewal of the certificate of operation, and the compliance with correction orders.

(c) The licensed contractor holding a temporary certificate of operation shall be responsible for the safe operation and maintenance of the elevator during the period that the temporary certificate is in force.

(2) Safety tests shall be performed by personnel approved by the department.

R 408.7008 Commissions of special elevator inspectors.

Rule 8. (1) A commission to inspect elevators in accordance with section 11 of the act may be issued by the director to a designated holder of a special certificate of competency when the fee has been paid and a written request is received from a company authorized to insure elevators in this state. Such a commission shall not be transferable. The commission shall be retained by the company and a commission credential card shall be issued to the special inspector. The commission and commission credential card shall be returned when services of the inspector terminate.

(2) A commission shall expire annually on December 31. A commission may be renewed by payment of a renewal fee and return of the expired card and commission renewal form.

R 408.7009 Examinations by elevator and equipment dealers and insurance companies.

Rule 9. Nothing in the act shall prevent the examination of elevators by dealers in elevators or elevator equipment or any approved insurance company. Such examination shall not be considered an inspection within the provisions of the act.

R 408.7010 New, altered, or relocated elevators; use.

Rule 10. A new, altered, or relocated elevator shall not be placed into service until it has been inspected by, and tested in the presence of, a general inspector, except as provided in section 15 of the act.

R 408.7011 Frequency of inspections.

Rule 11. All elevators shall be inspected by a general elevator inspector pursuant to the following schedule:

(a) Passenger, freight, mine, inclined, limited-use/limited application, special purpose personnel, and rooftop elevators, material lifts, barrier free lifting devices, escalators, moving walks, belt manlifts, and special elevating devices shall be inspected at least once every 12 months.

(b) Dumbwaiters, stairway chairlifts, 1-person elevators, hand-powered; 1-person elevators, electric-powered; platform lifts; and power sidewalk elevators shall be inspected at least once every 24 months.

(c) Personnel hoists shall be inspected at least once every 30 days.

(d) Elevating devices in private residences shall be inspected only at the discretion of the department or owner.

(e) More frequent inspections may be scheduled at the discretion of the department or owner.

R 408.7012 Temporary use of permanent elevators during construction.

Rule 12. (1) A licensed elevator contractor may request a temporary certificate of operation to permit the use of a passenger or freight elevator before its completion for carrying workers, authorized personnel, or materials. Such elevator shall not be

used until it has been approved by a general inspector, the required fee has been paid, and a temporary certificate of operation has been obtained. Such certificate shall be issued for a period not to exceed 90 days. Renewals may be granted at the discretion of the department.

(2) Permanent elevators used temporarily during construction shall be inspected every 30 days.

R 408.7013 Discontinuance of operation.

Rule 13. A general inspector may seal an elevator out of service and void the certificate of operation as provided in section 19 of the act or if any of the following conditions exist:

- (a) The holder of the certificate of operation fails to pay the required fee.
- (b) The holder of the certificate of operation fails to report an accident as required by these rules.
- (c) The elevator has been constructed, installed, altered, maintained, or repaired by a person, firm, or corporation not approved by the department.

R 408.7014 Inspection reports and certificates of operation.

Rule 14. (1) A general inspector shall forward to the department a report of each inspection stating the condition of the elevator. The inspection report shall be filed with the department within 10 days after the inspection has been completed.

(2) A report indicating an elevator has been sealed out of service shall be forwarded to the department within 48 hours.

(3) The director shall issue a certificate of operation for a capacity not to exceed that named in the inspection report.

R 408.7015 Correction orders.

Rule 15. (1) If upon inspection an elevator is determined to be in an unsafe condition, or if the owner or user has not complied with these rules, then the general inspector shall issue to the holder of the certificate of operation a written correction order stating corrections required and a time limit within which the correction order shall be complied with by the owner or user. The owner or user shall notify the department in writing as soon as full compliance is effected. Notification shall be on forms furnished by the department.

(2) If in the judgment of the general inspector, failure to make such corrections would endanger human life, then compliance with the correction order may be required immediately.

(3) Noncompliance with the correction order may subject the holder of the certificate of operation to the penalty provisions of the act.

R 408.7016 Special elevating devices.

Rule 16. (1) Special elevating devices within the scope of the act shall meet the requirements established by the department and the rules promulgated by the board.

(2) The devices specified in subrule (1) of this rule shall receive special consideration from the department as to the safety features incorporated into them

before they may be approved for installation. A permit to install a special elevating device shall be obtained from the department in accordance with section 15 of the act.

(3) Stagelifts are special elevating devices and shall meet the requirements of this rule.

R 408.7017 Examination for license or certificate of competency; journeyman.

Rule 17. The board may delegate to the elevator division the authority to administer the written or oral examinations, or both, required for a journeyman's license. The minimum passing grade for an applicant for a license or a certificate of competency shall be 70%. An applicant who fails to attain the minimum passing grade is not eligible for reexamination for 60 days after the examination, except as otherwise required by the act or by special permission of the board. A new application form and payment of the prescribed fee is required each time an applicant is examined.

R 408.7018 Elevator contractors' and journeymen's licenses; type classification.

Rule 18. (1) Elevator contractors' licenses and elevator journeymen's licenses are classified as follows:

(a) Type A, which covers the construction, repair, installation, alteration, and maintenance of any type of elevating device within the scope of the act.

(b) Type B, which covers the repair and maintenance of any type of elevating device within the scope of the act.

(c) Type C, which covers specific installations designed for particular and special purposes for which the applicant proves that he or she is qualified.

(2) More than 1 type of device may be combined or added to 1 Class C elevator contractor's license if the applicant has passed a written examination for each type of device.

R 408.7019 Fees.

Rule 19. (1) Fees shall be paid in accordance with the following schedule:

Commissions to inspect elevators	
Commission	\$25.00.
Commission renewal	\$25.00.
Examination for certificates of competency	
Certificate of competency examination	\$35.00.
Elevator contractor's licenses	
Elevator contractor's license and renewal	\$75.00.
Elevator contractor's examination	\$45.00.
Elevator journeyman license and renewal	\$20.00.
Elevator journeyman examination	\$25.00.

Installation permits

Base permit fee for each of the following devices:	\$200.00.
Passenger elevator	
Freight elevator	
Mine elevator	
Inclined elevator	
Limited-use/limited application elevator	
Private residence elevator	
Special purpose personnel elevator	
Dumbwaiter	
Material lift	
Plus \$25.00 for each hoistway opening	
Escalator	\$200.00.
Moving walk	\$200.00.
Power sidewalk elevator	\$200.00.
Rooftop elevator	\$200.00.
Personnel hoist, initial inspection	\$350.00.
Personnel hoist tower rise	\$150.00.
Belt manlift	175.00.
Special elevating device	\$200.00.
Barrier free lifting device	\$200.00.
Private residence platform lift and private residence stairway chairlift	\$75.00.
Platform lift and stairway chairlift in buildings other than private residence	\$100.00.
Private residence outdoor inclined lift	\$75.00.
Outdoor inclined lift at buildings other than private residence	\$100.00.

A final inspection fee is included in the installation permit fee. If a scheduled final inspection is canceled without due notice to the department, or if the elevator is not complete in the judgment of the general inspector, then an additional fee of \$300.00 shall be charged to the elevator contractor.

Major alteration permits

First alteration (including 1 final inspection)	\$110.00.
Each additional alteration	\$45.00.
Maximum alteration fee	\$280.00.

Certificate of operation

Annual certificate of operation	\$35.00.
Temporary certificate of operation	\$140.00.

Inspection by general inspector

Inspection	\$110.00.
Follow-up	\$110.00.

Special services

The department may provide, upon written request, special services that are not otherwise covered in the fee structure. The charge for this service shall be at the rate of \$50.00 per hour including travel time.

(2) Fees that are required pursuant to the provisions of the act shall be paid to the department. Checks or money orders shall be made payable to the "State of Michigan."

R 408.7020 Supervising employees.

Rule 20. (1) If a contractor's license is based on the qualification of a supervising employee, then termination of employment of a supervising employee shall result in the suspension of the license 90 days after termination of employment and the license shall remain suspended until another supervising employee is certified for the employer by the board. The supervising employee and the employer shall each notify the department in writing when the termination of the employment of the former occurs.

(2) A person serving as supervising employee of a contractor may not concurrently serve as supervising employee of another contractor. A supervising employee shall be employed on a full-time basis by the contractor.

R 408.7021 Renewal of contractor's licenses and commissions.

Rule 21. A contractor's license and a commission which has expired may be renewed within 60 days after the date of expiration without examination upon payment of the required renewal fee. A contractor's license and a commission which is not so renewed is considered revoked.

R 408.7022 Violations; penalties.

Rule 22. Any person, firm, or corporation who shall refuse to comply with, or who shall assist in the violation of, any of the provisions of these rules, or who, in any manner hinders, obstructs, resists, prevents, causes unreasonable delay, or in any manner interferes with the inspectors in the performance of any duty herein imposed, or shall refuse to permit such inspectors to perform their duty by refusing them entrance at reasonable hours to buildings or places for the purpose of enforcement of these rules, shall be subject to the fines and penalties as provided by the act.

R 408.7023 Appeals to the board.

Rule 23. (1) Any person, firm, or corporation aggrieved by any decision, ruling, or order of the director or of the department may appeal within 15 days from date of mailing of the decision, ruling, or order to the board, for a hearing before the board in accordance with section 8(d) of the act. An appeal shall specify the reasons and the relief sought and shall be submitted to the director for presentation to the board.

(2) A fee of \$25.00 shall be deposited with the department at the time the appeal is filed. Payment shall be by cash, money order, or certified check made payable to "Treasurer—State of Michigan."

(3) The board shall set a time for hearing of the appeal and give notice by mail to the appellant at least 10 days before the date set for hearing.

(4) A request for an adjournment shall be filed in writing at least 5 days before the date set for hearing. The board, or the director, may for good cause shown grant an adjournment.

(5) If the appellant fails to appear at the time set for hearing, the board may proceed with the hearing and decide the case in the absence of the appellant. The board may affirm, modify, or set aside the ruling of the department and shall notify the director and the appellant in writing of its decision. The department shall refund the appeal fee if a decision is rendered in favor of the appellant.

R 408.7024 Applicability of rules and manual.

Rule 24. Elevators as defined in section 3 of the act installed before the effective date of this code edition shall comply with the Michigan elevator laws and rules in effect at the time of adoption of this code until the device is altered. All other approved existing features or components of the elevator shall comply with these rules and shall be maintained as described in the American society of mechanical engineers (ASME) guide for inspection of elevators, escalators, and moving walks ASME A17.2-2001, which is adopted in these rules by reference and is available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes, and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society of Mechanical Engineers, 22 Law Drive, Box 2900, Fairfield, New Jersey 07007-2900, at a cost as of the time of adoption of these amendatory rules of \$110.00 each.

R 408.7025 Service and examination of power elevators; frequency; exception.

Rule 25. A power elevator, except a private residence elevator, private residence inclined elevator, private residence platform lift, or private residence stairway chairlift, shall be serviced and examined for defects by a licensed elevator journey person at least once every 90 days, except for the following devices which shall be serviced and examined at least once every 180 days:

- (a) Dumbwaiters.
- (b) One-person elevators, electric and hand-powered.
- (c) Platform lifts and stairway chairlifts in buildings other than private residences.

An accessible written record of all service and examination shall be maintained in the machine room or on-site if a machine room does not exist.

CHAPTER 2. ALL ELEVATORS

R 408.7026 Disconnecting means for new and altered elevators.

Rule 26. The disconnecting means for all elevators and escalators that have 208 volts alternating current (VAC) nominal, 3-phase, shall be a heavy-duty type means and feature a dual cover interlock or a circuit breaker capable of being locked in the open position.

R 408.7027 Elevators operated from car only.

Rule 27. All existing or new elevators operated from the car only shall be provided with an approved means of opening the landing door, from the landing side, when the car is in the unlocking zone.

R 408.7028 Buffers and bumpers.

Rule 28. Buffers of the spring, oil, or equivalent type shall be installed under cars and counterweights of all elevators. Bumpers or solid stops are prohibited.

R 408.7029 Dormant elevators.

Rule 29. (1) An elevator, escalator or moving walk which is inactive for 1 year shall be classified as dormant and placed out of service in compliance with section 8.11.1.4(b) of the ASME A17.1 code.

(2) A platform lift or stairway chairlift which is inactive for 1 year shall be classified as dormant and placed out of service as follows:

- (a)** The device shall be lowered and any suspension means removed.
- (b)** The power feed lines shall be disconnected from the machine disconnect switch and taped in compliance with section 10.1.5 of the ASME A18.1 code.
- (c)** All landing entrances shall be secured in a closed position from inside the runway or hoistway.
- (d)** Folding type devices shall be secured against movement.

(3) Before a dormant elevating device may be placed in service, it shall be inspected by the department and shall conform to these rules and the applicable section of the standard.

R 408.7030 Elevator and escalator monitoring

Rule 30. All elevators and escalators may be monitored from a remote location. Monitoring shall consist of passing information from the elevator control to a remote location for the collection of information. A device shall not have the capability to adjust, alter, change or reset any switch, parameter, or system of the elevator control from any location except the corresponding car, hoistway, or machine room. The device shall not be capable of bypassing or resetting any safety or electrical protective device. Information collected shall be made available to the department upon request.

CHAPTER 3. ASME A17.1 MODIFICATIONS

R 408.7031 Non-fire-resistive construction.

Rule 31. Section 2.1.1.2.2 of the ASME A17.1 code is amended to read as follows:

2.1.1.2.2 The hoistway shall be fully enclosed conforming to section 2.1.1.2.2(a), (b), and (c), or 2.1.1.2.2(a) and (d) of the ASME A17.1 code.

(1) Enclosures and doors shall be unperforated to a height of 2000 mm (79 inches) above each floor or landing and above the treads of adjacent stairways. The enclosure shall be unperforated, adjacent to, and for 150 mm (6 inches) on either side of any moving equipment that is within 100 mm (4 inches) of the enclosure.

(2) Openwork enclosures, where used above the 2000 mm (79 inches) level, shall reject a ball 25 mm (1 inch) in diameter.

(3) Openwork enclosures shall be:

(a) At least 2.2 mm (0.087 inch) thick wire, if of steel wire grille.

(b) At least 2.2 mm (0.087 inch) thick, if of expanded metal.

(c) So supported and braced as to deflect not over 15 mm (0.6 inch) when subjected to a force of 450 N (100 lbf) applied horizontally at any point.

(3) Enclosures may be glass, provided they are laminated glass in compliance with the Michigan building code, R 408.30401 et seq., or CAN/CGSB-12.1, which is adopted by reference in these rules. The standard is available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the Canadian General Standards Board, Sales Center, Place Du Portage, Phase III Floor 6B1, 11 Laurie Street, Hull, Quebec K1A1G6, at a Canadian cost as of the time of adoption of these amendatory rules of \$50.40. Markings as specified in the applicable standard shall be on each separate piece of glass and shall remain visible after installation.

Glass used for the protection of a hoistway shall provide protection to a minimum height of 8 feet above floor or landing.

R 408.7032 Drains and sump pumps.

Rule 32. Section 2.2.2.4 of the ASME A17.1 code is amended to read as follows:

2.2.2.4 Drains and sump pumps, where provided, shall comply with the Michigan plumbing code, R 408.40701 et seq. and shall be provided with a positive means to prevent water, gases, and odors from entering the hoistway. Subsoil drains shall not be connected or discharged to elevator pits or sumps.

R 408.7033 Enclosure of machine rooms and machinery spaces.

Rule 33. Section 2.7.1 of the ASME A17.1 code is amended to read as follows:

2.7.1 Machines, control equipment, sheaves, and other machinery shall not be exposed to the weather. Machine room and machinery-space enclosures shall conform to section 2.7.1.1 or 2.7.1.2 of the ASME A17.1 code.

Access to these spaces shall not be through restrooms, lavatories, locker rooms, or associated vestibules. Where enclosed ceilings are required or provided they shall be of a solid type with no access panels. Drop type ceilings shall not be permitted. Machine rooms and machinery spaces shall not be used as a pass through or for access to other areas. Building access panels or doors are prohibited in these areas.

R 408.7034 Sprinkler systems.

Rule 34. Section 2.8.2.3 of the ASME A17.1 code is amended to read as follows:

2.8.2.3 Sprinkler systems conforming to the Michigan building code, R 408.30401 et seq., may be installed in the hoistway, machine room, and machinery spaces. Sprinklers installed in elevator shafts and machine rooms shall meet the following requirements:

(1) In hoistways a side wall spray sprinkler shall be installed at the bottom of each hoistway, not more than 24 inches and not less than 12 inches above the floor of the pit. A guard shall be installed on the sprinkler head to prevent accidental tripping or activation.

(2) In elevator machine rooms automatic sprinklers of ordinary or intermediate temperature rating shall be provided.

Each system shall have a readily accessible shut-off valve, that is electronically supervised, located outside the protected area. Sprinkler systems are also subject to the requirements of sections 2.8.2.3.1 through 2.8.2.3.4 of the ASME A17.1 code.

R 408.7035 Reopening device for power-operated car doors or gates.

Rule 35. Section 2.13.5.1 of the ASME A17.1 code is amended to read as follows:

2.13.5.1 Where required by section 2.13.3.4 or 2.13.4 of the ASME A17.1 code, a power-operated car door shall be provided with a reopening device that will function to stop and reopen a car door and the adjacent landing door sufficiently to permit passenger transfer if the car door or gate is obstructed while closing. The reopening device used shall be effective for substantially the full vertical opening of the door in compliance with section 2.13.4.2 of the ASME A17.1 code.

The door reopening device shall remain in operation at all times when the elevator is operating on normal service. Any devices which are designed to bypass the door opening device when the door is open for a predetermined amount of time (nudging) shall not be installed. This does not include operation under fire and other emergency conditions.

R 408.7036 Illumination and outlets required, light fuses and circuit breakers, installation.

Rule 36. Section 2.14.7.1 of the ASME A17.1 code is amended to read as follows:

2.14.7.1 Cars shall be provided with an electric light or lights conforming to sections 2.14.7.1.1 through 2.14.7.1.4 of the ASME A17.1 code. The fuses or circuit breakers for elevator car lights shall be installed in the machine room.

R 408.7037 Overloading of freight elevators.

Rule 37. Section 2.16.6 of the ASME A17.1 code is amended to read as follows:

2.16.6 Freight elevators shall not be loaded in excess of their rated load as specified on the capacity plate required by section 2.16.3 of the ASME A17.1 code.

Exceptions:

(a) Static loads on elevators loaded and unloaded by industrial trucks as noted on capacity or separate plate shall comply with sections 2.16.2.2.3 and 2.16.3.2.1(b) of the ASME A17.1 code.

(b) Elevators designed and installed in compliance with section 2.16.7 of the ASME A17.1 code to carry 1-piece loads exceeding their rated load.

If the department determines that safe operation requires it, a load-weighing device shall be installed. The load weighing device shall prevent operation of the elevator in the down direction only when the load on the platform is in excess of 125% of the rated load as determined by the requirements of section 2.16.3 of the ASME A17.1 code. Such devices shall prevent operation of the elevator in the up direction when the load on the car is in excess of the rated load.

R 408.7038 Two-way communication.

Rule 38. Section 2.27.1.1.2 of the ASME A17.1 code is amended to read as follows:

2.27.1.1.2 A means of two-way conversation (telephone, intercom, and others) shall be provided between the car and a readily accessible point outside the hoistway that is available to emergency personnel.

R 408.7039 Fire alarm initiating devices.

Rule 39. Section 2.27.3.2.1 of the ASME A17.1 code is amended to read as follows:

2.27.3.2.1 Fire alarm initiating devices shall be installed in compliance with the requirements of the Michigan electrical code, R 408.30801 et seq., in all of the following locations:

- (a) Each floor served by the elevator.
- (b) The associated elevator machine room.
- (c) The elevator hoistway, when required.

The fire alarm initiating devices required by section 2.27 of the ASME A17.1 code shall be installed as a stand-alone system. The initiating devices shall be installed so that only the elevator or group of elevators which are affected by the emergency shall be captured. No electrical connection shall be permitted between the stand-alone system and any other initiating device or fire alarm system. These initiating devices are part of the elevator control system and shall be installed by a licensed elevator journeyman or under the direct supervision of a licensed elevator journeyman.

Exception: A dry contact may be made available in the elevator controller to be connected to the building fire alarm system for supervision of the elevator stand-alone system. The dry contact shall be located such that any malfunction of either system will not sacrifice the integrity of the other system.

R 408.7040 Machine room entrance; location.

Rule 40. Section 3.7.1 of the ASME A17.1 code is amended to read as follows:

3.7.1 Hydraulic elevator machine and control rooms may be located overhead, adjacent to, underneath the hoistway, or at a remote location. They shall not be located in the hoistway. The entrance to the machine room shall be not more than 25 feet, walking, from a hoistway door.

If hydraulic machines and electrical control equipment are located in spaces separated from the hoistway enclosure in compliance with section 2.1.1 of the ASME A17.1 code, then such spaces shall be separated from other parts of the building by enclosures conforming to section 2.7.1.2 of the ASME A17.1 code and having an access door conforming to section 2.7.3.4 of the ASME A17.1 code.

R 408.7041 Car safeties.

Rule 41. Section 3.17.1 of the ASME A17.1 code is amended to read as follows:

3.17.1 Car safeties shall be provided for roped-hydraulic elevators and shall be permitted to be provided for direct-acting hydraulic elevators. When provided, car safeties shall comply with section 2.17, and sections 3.17.1.1 through 3.17.1.3 of the ASME A17.1 code.

Car safeties shall be installed if the department determines they are necessary for safe operation.

R 408.7042 Cylinder protection.

Rule 42. Section 3.18.3.8.1 of the ASME A17.1 code is amended to read as follows:

3.18.3.8.1 Cylinders not completely exposed above ground shall be protected from corrosion due to galvanic or electrolytic action, salt water, or other underground conditions. An outer cylinder casing of steel is required on a new hydraulic elevator or where a cylinder is being replaced. The steel casing shall have a wall thickness that is not less than 3/8 of an inch. An expandable-type concrete plug shall be poured in the bottom of a casing or a welded plate closer shall be provided and water removed. Dry nonconductive material, if needed, shall be provided between a cylinder and its casing to secure the position of the cylinder. Other methods may also be used with the required steel casing in compliance with section 3.18.3.8.2 of the ASME A17.1 code.

R 408.7043 Pipe supports and guards.

Rule 43. Section 3.19.2.3 of the ASME A17.1 code is amended to read as follows:

3.19.2.3 Piping shall be supported to eliminate undue stress at joints and fittings, particularly at any section of the line subject to vibration. Exposed portions of supply piping directly below the space between the hoistway and car sill in the elevator pit shall be protected with an approved type of guard. Any accessible hydraulic piping that is located outside the elevator machine room or hoistway shall have marking applied stating "Elevator Hydraulic Line" in letters that are at least 19 mm (.75 inch) high in a contrasting color. The marking shall be visible after installation and applied at intervals not greater than 3000 mm (120 inches).

R 408.7044 Shutoff valves; gauge snaps; underground piping; tags.

Rule 44. Section 3.19.4.1 of the ASME A17.1 code is amended to read as follows:

3.19.4.1 A shutoff valve shall be provided on a new or modernized hydraulic elevator and shall be installed in the cylinder supply line within the elevator machine room. If the hoistway is remotely located from the machine room, then a shutoff valve shall also be provided in the elevator pit.

R 408.7045 Pressure gauge fittings.

Rule 45. Section 3.19.4.5 of the ASME A17.1 code is amended to read as follows:

3.19.4.5 A new hydraulic machine shall be provided with the necessary permanent pressure gauge snap-on fittings or permanent gauges, with a shut off valve to allow pressure readings at each pump for checking operating pressures. The gauge or fitting shall be located on the jack side of the check valve or immediately adjacent to the hydraulic control valve.

R 408.7046 Underground piping.

Rule 46. Section 3.19.5.1 of the ASME A17.1 code is amended to read as follows:

3.19.5.1 Underground piping in connection with a new hydraulic elevator is prohibited. If a cylinder is replaced on an existing hydraulic elevator, then the corresponding piping, if underground, is prohibited unless approved by the department.

R 408.7047 Buffers and buffer supports.

Rule .47 Section 5.3.1.14.1 of the ASME A17.1 code is amended to read as follows:

5.3.1.14.1 The car and counterweight shall be provided with spring buffers. They shall be so designed and installed that they will not be fully compressed when struck by car with its rated load or by the counterweight traveling at 125% of the rated speed, or at governor tripping speed where a governor-operated safety is used.

R 408.7048 Buffers.

Rule 48. Section 5.4.10.1 of the ASME A17.1 code is amended to read as follows:

5.4.10.1 For rated speeds not exceeding 0.25 m/s (50 ft/min), spring or equivalent type buffers are required. Bumpers or solid stops shall not be permitted.

R 408.7049 Enclosures for runways and driving machines.

Rule 49. Section 5.4.13.8 of the ASME A17.1 code is amended to read as follows:

5.4.13.8 Location of driving-machine, alignment, and guarding of sheaves.

(1) The driving machine may be mounted on the car chassis or placed at a remote location. If remotely located, all intervening sheaves or sprockets shall be placed to insure that ropes or chains travel in proper alignment. All sheaves or sprockets shall be guarded.

(2) A driving machine and controller shall be located within a locked enclosure. This enclosure shall be supported and braced so as to deflect not over 1 inch when subjected to a force of 100 pounds applied horizontally at any point.

R 408.7050 Type of operation.

Rule 50. Section 5.4.15.1 of the ASME A17.1 code is amended to read as follows:

5.4.15.1 The inclined elevator shall be operated by weatherproof constant pressure key switches at each landing and on the car. Key-operated switches shall be of the spring-return type and shall be operated by a cylinder type lock having not less than 5-pin or 5-disk combination with the key removable only when the switch is in the off position. The key shall be group 4 security in compliance with section 8.1 of the ASME A17.1 code.

R 408.7051 Electrical equipment and wiring requirements.

Rule 51. Section 5.4.15.5.1 of the ASME A17.1 code is amended to read as follows:

5.4.15.5.1 All electrical equipment and wiring shall conform to the requirements of the Michigan electrical code. A fused disconnect switch or a circuit breaker shall be installed within the machine enclosure and connected to the power supply line to each electric motor. A hoisting motor shall have a manually reset type of electrical overload device.

R 408.7052 Clearances between balustrades and steps.

Rule 52. Section 6.1.3.3.5 of the ASME A17.1 code is amended to read as follows:

6.1.3.3.5 The clearance (loaded gap) between the step tread and the adjacent skirt panel shall be not more than 3/16 inch when 110 n (25 lbf) is laterally applied from the step to the adjacent skirt panel. The applied load shall not deviate from 110 n (25 lbf) by more than ± 11 n (2.5 lbf). The load shall be distributed over an area not

less than 1940 mm² (3 inches²) and not more than 3870 mm² (6 inches²). The combined clearances of both sides shall be not more than 1/4 of an inch.

R 408.7053 Skirt deflector devices.

Rule 53. Section 6.1.3.3.8 of the ASME A17.1 code is amended to read as follows:

6.1.3.3.8 Deflector devices shall be permitted. Where provided, deflector devices shall extend from skirt panels parallel to the escalator path of travel. Means to secure such deflector devices may be on the exposed surface of the skirt. All fasteners shall be of steel with machine screw threads. Any exposed fastener heads shall be of the tamper-resistant type and flush to within 1 mm (0.04 inch).

(1) Rigid elements shall be in compliance with the following conditions:

(a) Horizontal protrusions extending above the step shall be 18 mm (0.75 inch) maximum. Corners or changes in profile shall be rounded or beveled. The exposed surfaces of such elements shall be smooth and permanently treated with a low-friction material.

(b) On the incline, the area of any protrusion shall lie entirely offset outward from a line beginning on the vertical portion of the skirt panel measured 25 mm (1 inch) vertically above the step nose line. The lower surface shall be beveled not less than 10 degrees upward and the upper surface shall be beveled not less than 15 degrees downward in compliance with Figure 6.1.3.3.8 of the ASME A17.1 code.

(c) At the upper and lower landing, any protrusion shall lie entirely above a line beginning on the vertical portion of the skirt panel 50 mm (2 inches) above the step nose line. The lower surface shall be beveled not less than 10 degrees upward and the upper surface shall be beveled not less than 15 degrees downward. Any rigid elements at the landings shall smoothly blend into the rigid elements along the incline in accordance with the radius of curvature of the transition zone.

(d) If attached to the skirt, rigid elements shall withstand a force of 900 N (200 lbf) perpendicular to the line of attachment of the element without detachment or permanent deformation. The force shall be applied to an area of 645 mm² (1 inch²).

(2) Flexible elements shall be in compliance with the following conditions:

(a) The horizontal protrusion extending from the skirt surface above the step shall be 50 mm (2 inches) maximum.

(b) Shall be capable of deflecting to an angle of 10 degrees or greater above the horizontal protrusion.

(c) Noncontinuous flexible elements shall be allowed to deflect to allow a maximum of 9.5 mm (0.375 inch) interference with any point on the step surface.

(d) Continuous flexible elements shall not deflect such that they can contact the steps.

R 408.7054 Record of oil usage.

Rule 54. Section 8.6.5.7 of the ASME A17.1 code is amended to read as follows:

8.6.5.7 For systems where part of the cylinder or piping, or both, are not exposed for visible inspection, a written record shall be kept of the quantity of hydraulic fluid added to the system and emptied from leakage collection containers and pans. The written record shall be kept in the machine room. If the quantity of hydraulic

fluid loss cannot be accounted for, then the test specified in section 8.11.3.3.3 of R 408.7059 shall be done.

R 408.7055 Firefighters' emergency operation.

Rule 55. Section 8.6.10.1 of the ASME A17.1 code is amended to read as follows:

8.6.10.1 All elevators provided with firefighters' emergency operation shall be subjected quarterly to phase I recall by use of the key switch, and a minimum of 1-floor operation on phase II. Deficiencies shall be corrected. An accessible written record of test results shall be maintained in the machine room.

R 408.7056 Applicability of alteration requirements.

Rule 56. Section 8.7.1.1 of the ASME A17.1 code is amended to read as follows:

8.7.1.1 (1) If any alteration is performed, regardless of any other requirements of section 8.7 of the ASME A17.1 code, then the installation, as a minimum, shall conform to both of the following requirements:

(a) The Michigan elevator laws and rules at the time of installation.

(b) The Michigan elevator laws and rules for the alteration at the time of any alteration.

(2) A permit shall be obtained and the elevator shall not be placed into service until it has been inspected and tested in the presence of a general inspector, except as provided in section 15 of the act.

R 408.7057 Car enclosure alterations.

Rule 57. Section 8.7.2.14.3 of the ASME A17.1 code is amended to read as follows:

8.7.2.14.3 If any alteration is made to the car enclosure, other than as specified in section 8.7.2.14.2 of the ASME A17.1 code, then the installation shall conform to the following:

(a) Where an existing metal enclosure is retained and new material, other than metal, is installed, the car enclosure shall conform to section 2.14.2.1.1 of the ASME A17.1 code.

(b) All materials, other than metal or glass, which are used in passenger car enclosure walls and ceilings, and which are not tested in their end use configuration shall be tested individually pursuant to ASTM E 84, UL 723, or NFPA 255, which are adopted by reference in these rules, and the results shall be in compliance with a class A rating, that has a flame spread of 0 - 25 and smoke development of 0 - 450. The ASTM E 84, UL 723, or NFPA 255 standards are available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society for Testing and Materials, 100 Bar Harbor Drive, 2 Conshohocken, PA 19428-2959 (ASTM E 84); COMM 2000, 1414 Brook Drive, Downers Grove, IL 60515 (UL 723); National Fire Protection Association, 11 Tracey Drive, Avon, MA 02322 (NFPA 255) at a cost as of the time of adoption of these amendatory rules of \$35.00, \$243.00, and \$23.50 respectively.

(c) Napped, tufted, woven, looped, and similar materials shall conform to sections 2.14.2.1.1 and 2.14.2.1.2 or sections 8.7.2.14.3(b), 8.3.7, and 8.3.8 of the ASME A17.1 code. Adhesives shall conform to section 8.7.2.14.3(b) of the ASME A17.1 code.

(d) Floor covering, underlayment, and its adhesive shall have a critical radiant flux of not less than 0.45 w/cm² as measured by ASTM E 648 which is adopted by reference in these rules. The standard is available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society for Testing and Materials, 100 Bar Harbor Drive, 2 Conshohocken, PA 19428-2959, at a cost as of the time of adoption of these amendatory rules of \$35.00.

(e) Handrails, operating devices, ventilating devices, signal fixtures, audio and visual communications devices, and their housings are not required to conform to section 8.7.2.14.3(a) to (d) of the ASME A17.1 code.

R 408.7058 Acceptance inspection and tests.

Rule 58. Section 8.10.1.1.1 of the ASME A17.1 code is amended to read as follows:

8.10.1.1.1 The acceptance inspection shall be made by an inspector employed by the authority having jurisdiction. All parts of the installation shall be inspected for conformity with the requirements of the Michigan elevator laws and rules and section 8.10 of the ASME A17.1 code. The American society of mechanical A17.2-2001 engineers, guide for inspection of elevators, escalators, and moving walks, ASME, a copy of which is adopted by reference in R 408.7024, is recommended as a guide in making the inspection. Balance load and maximum normal speeds with maximum rated load and no load shall be determined and recorded on forms furnished by the department.

R 408.7059 Three year inspection and test requirements.

Rule 59. Section 8.11.3.3 is added to the ASME A17.1 code to read as follows:

8.11.3.3.3 (1) Cylinders shall be tested at intervals of not more than 36 months.

(2) Three-year inspection and test requirements.

(a) The relief valve setting shall be in compliance with section 3.19.4.2 of the ASME A17.1 code. The relief valve shall be resealed if the relief valve setting is altered or if the seal is broken.

(b) Test the relief valve setting by first inching the empty car upward to engage the plunger stop ring or to engage other suitable blocking provided and then apply pressure from the pump to check the setting.

Procedures for set test are as follows:

(i) Put rated load in the car and locate it at any convenient level.

(ii) Open the disconnect switch and locate the elevation of the platform with respect to a convenient reference.

(iii) For cylinders that are not completely exposed, after not less than 2 hours, note the position of the platform with respect to the chosen reference. For cylinders that are completely exposed, after not less than 30 minutes, note the position of the platform with respect to the chosen reference. A change in the car position during a cylinder test that cannot be accounted for by visible oil leakage or temperature change of the oil indicates a failure of some type requiring further inspections, tests, or repairs. An accessible written record of all oil levels and all oil added shall be maintained in the machine room.

CHAPTER 4. ASME A18.1 MODIFICATIONS

R 408.7060 Runway enclosure.

Rule 60. Section 2.1.1.1 of the ASME A18.1 code is amended to read as follows:

2.1.1.1 The runway shall be guarded by a solid enclosure extending from the lowest landing to a height at least equal to the height of the platform enclosure above the uppermost landing, in no case less than 42 inches (1067 mm) above the uppermost landing. The enclosure shall withstand, without permanent deformation, a force of 125 lbf (556 n) applied on any 4 inch (102 mm) by 4 inch (102 mm) area. The interior of the runway enclosure shall present a smooth surface.

R 408.7061 Runway entrance.

Rule 61. Section 2.1.1.2 of the ASME A18.1 code is amended to read as follows:

2.1.1.2 The runway entrance shall be guarded at the upper landing by a door of unperforated construction not wider than the platform plus 1 inch (25.4 mm). The door shall be self-closing and guard the entire opening to a height equal to or higher than the height of the platform enclosure. The openings created in the runway by these doors shall provide a minimum vertical clearance of 6 feet 8 inches. The doors shall guard the entire area of the openings except for space necessary for operation. Space necessary for operation shall reject a ball 1/2 inch in diameter.

R 408.7062 Platforms.

Rule 62. Section 2.6.1 of the ASME A18.1 code is amended to read as follows:

2.6.1 Frame, floor, and platform entrance. The frame shall be of metal construction and have a factor of safety of not less than 5 based on the rated load. The floor shall be of metal or wood construction with a nonskid surface. One or more of the following shall be provided on each platform entrance:

(a) A solid door with an electric contact which is a minimum of 42 inches high. In no case shall the door be less in height than the height of the platform enclosure opening.

(b) Light rays that are provided at 3 inches and 12 inches above floor level.

(c) A proximity device that is effective for the full width of the opening and from 1 inch above floor level to the height of the platform enclosure opening.

(d) Other types of devices approved by the board. The operation of the device shall remove the electric power from the motor and brake.

R 408.7063 Passenger restriction sign.

Rule 63. Section 2.7.4 is added to the ASME A18.1 code to read as follows:

2.7.4 A passenger restriction sign shall be provided and placed on each landing door and on the platform. It shall be securely fastened in a conspicuous place. The sign shall state "physically disabled persons only - no freight" in letters not less than 1/2 inch (12.8 mm) high and shall include the international symbol for physically disabled persons.

R 408.7064 Passenger restriction sign.

Rule 64. Section 3.7.5 of the ASME A18.1 code is amended to read as follows:

3.7.5 A passenger restriction sign shall be provided and placed on each landing door and on the platform. It shall be securely fastened in a conspicuous place. The sign shall state "physically disabled persons only - no freight" in letters not less than 1/2 inch (12.8 mm) high and shall include the international symbol for physically disabled persons.

R 408.7065 Rated load and speed.

Rule 65. Section 4.7.1 of the ASME A18.1 code is amended to read as follows:

4.7.1. The capacity shall not be more than 2 persons. The rated load shall not be less than 250 pounds for a 1-seat lift and not less than 400 pounds for a 2-seat lift. The rated speed shall not exceed 30 feet per minute.

R 408.7066 Rated load and speed.

Rule 66. Section 7.7.1 of the ASME A18.1 code is amended to read as follows:

7.7.1. The capacity shall not be more than 2 persons. The rated load shall not be less than 250 pounds for a 1-seat lift and not less than 400 pounds for a 2-seat lift. The speed as measured along the incline, shall not exceed 30 feet per minute. The device shall be installed and maintained so that the means of egress is in compliance with the provisions of the Michigan building code.

R 408.7067 Inspection and test requirements for altered installations.

Rule 67. Section 10.5 of the ASME A18.1 code is amended to read as follows:

10.5 (1) If any alteration is performed, regardless of any other requirements of the standard, then the installation, as a minimum, shall conform to the requirements of the Michigan elevator laws and rules and the applicable code requirements.

(2) The alteration shall not begin until a permit is obtained from the department and the elevator shall not be placed into service until it has been inspected and tested in the presence of a general elevator inspector, except as provided in section 15 of the act.

CHAPTER 5. ASME A90-1 MODIFICATIONS

R 408.7068 Applicability of national standard and rules of board.

Rule 68. (1) The standards contained in the American Society of Mechanical Engineers (ASME) safety standard for belt manlifts, ASME A90.1-1997, A90.1a-1999 and A90.1b-2001 addenda are adopted in these rules by reference and are available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society of Mechanical Engineers, 22 Law Drive, Box 2900, Fairfield, New Jersey 07007-02900, at a cost as of the time of adoption of these amendatory rules of \$48.00.

(2) This rule applies to manlifts that are used only to carry plant personnel in granaries, flour mills, parking garages, and similar buildings or occupancies. Belt manlifts shall not be used by the public and, if located in buildings to which the

public has access, shall be located in an enclosure that is protected by self-closing, spring-locked doors. Keys to the doors shall be available to employees. The use of belt manlifts during construction is prohibited.

(3) The hoistway enclosure shall be in compliance with the requirements of the Michigan building code, R 408.30401 et seq., and shall maintain the fire rating of the structure.

(4) The travel of any single belt manlift installed after February 14, 1968 shall not exceed 100 feet.

CHAPTER 6. ANSI A10.4 MODIFICATIONS

R 408.7069 Applicability of national standard.

Rule 69. The standards contained in the American national standards institute (ANSI) safety requirements for personnel hoists and employee elevators for construction and demolition operations, A10.4-1990, with the exception of sections 24.1.2.1 and 26.4.8.1 are adopted by reference in these rules and are available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American National Standards Institute, 1430 Broadway, New York, New York 10018, at a cost as of the time of adoption of these amendatory rules of \$54.00.

R 408.7070 Location.

Rule 70. Section 5.4.8 of the ANSI A10.4 standard is amended to read as follows:

5.4.8 (1) A personnel hoist shall be installed not less than 12 feet from any other lifting or lowering apparatus except other personnel hoists.

(2) A hoistway shall not be located either partially or wholly over sidewalks or passageways.

(3) If tower cranes are installed such that the boom or trolley may go over or into the 12 foot restricted area, then both of the following shall apply:

(a) Limit switches shall be located on both the booms and trolleys of the tower cranes to activate audio and visual alarms and also prevent the boom or trolley from going over or working within 12 feet of the personnel hoist while the hoist is occupied.

(b) Key override switches shall be installed to allow the boom and trolley to go into the 12 foot restricted area when moving material, or at any time the boom or trolley passes over the restricted area. The personnel hoist shall be unoccupied at this time. The evacuation of the personnel hoist is the responsibility of the crane operator and the general contractor.

R 408.7071 Hoistway doors and gates.

Rule 71. Section 6.2.2 of the ANSI A10.4 standard is amended to read as follows:

6.2.2 (1) Every hoistway door shall be equipped with an approved interlock.

(2) Sliding doors and gates shall be constructed of metal and shall be of a design which will reject a ball 1-1/2 inches in diameter.

R 408.7072 Spring buffers.

Rule 72. Section 14.2.1 of the ANSI A10.4 standard is amended to read as follows:

14.2.1 The stroke of the buffer spring, as marked on its marking plate, shall be greater than or equal to those listed in table 2 of the code. Spring-type car and counterweight buffers shall be used for rated speeds not exceeding 300 feet per minute. For rated speeds of more than 200 feet per minute the buffer strokes shall conform to both of the following:

- (a) 201-250 feet per minute—6-inch stroke.
- (b) 251-300 feet per minute—9-inch stroke.

R 408.7073 Car enclosure tops.

Rule 73. Section 17.7 of the ANSI A10.4 standard is amended to read as follows:

17.7 Tops of car enclosures shall be so designed and installed to be capable of sustaining a load of 300 pounds (136 kg) on any square area 2 feet (0.6 m) on a side and 100 pounds (45 kg) applied at any point. Simultaneous application of these loads is not required. The personnel hoist shall have overhead protection equivalent to 2-inch plank. The planks shall be secured. The exit cover shall be hinged and locked and open outward.

R 408.7074 Use of winding drum machines.

Rule 74. Section 22.2 of the ANSI A10.4 standard is amended to read as follows:

22.2 Winding drum machines may be used irrespective of car travel if the drums are grooved for hoisting wire rope. Grooves shall be machine finished and shall be of the helical or parallel type. Only 1 layer of rope may be on the drum.

R 408.7075 Car speed.

Rule 75. Section 22.3 of the ANSI A10.4 standard is amended to read as follows:

22.3 The rated speed shall not be more than 300 feet per minute.

R 408.7076 Emergency stop switch.

Rule 76. Section 24.2.4 of the ANSI A10.4 standard is amended to read as follows:

24.2.4 An emergency stop switch shall be provided in the car and located in or adjacent to the car operating panel. When opened, the switch shall cause the electric power to be removed from the hoist driving-machine motor and brake.

Emergency stop switches shall have all of the following characteristics:

- (1) Manually opened and closed type.
- (2) Red operating handles or buttons.
- (3) Conspicuously and permanently marked "stop."
- (4) Positively opened mechanically and the opening shall not be solely dependent on springs.
- (5) Capability of being locked out of use when the operator leaves the car.
- (6) Operation of the emergency stop switch shall not require manual resetting of the control panels.

R 408.7077 Voltages permitted in hoistway or on the car.

Rule 77. Section 24.3.1 of the ANSI A10.4 standard is amended to read as follows:

24.3.1 The maximum system or circuit potential permitted on any equipment in the hoistway or on the car shall be not more than 600 volts. If the potential exceeds 120 volts, then either a grounding conductor shall be incorporated in the traveling cable or a separate grounding conductor shall be installed. A visual indicator shall be included in the grounding circuit, so arranged as to indicate continuously the continuity of the grounding conductor. The type and size of the grounding conductor and the grounding fastening means shall conform to the requirements of the Michigan electrical code. The grounding circuit shall include a device which will interrupt the electric circuit to the load if a ground fault occurs.

R 408.7078 Rated load safety test.

Rule 78. Section 26.4.8 of the ANSI A10.4 standard is amended to read as follows:

26.4.8 A rated load safety test, as required by section 26.2.1.1 of the ANSI A10.4 standard, shall be performed by a licensed elevator contractor in the presence of a general elevator inspector every 90 days.

R 408.7079 Operation.

Rule 79. Section 26.6 of the ANSI A10.4 standard is amended to read as follows:

26.6 Hoists shall be operated in compliance with the manufacturing specifications, rules and recommendations, and the same of the governing authority. This shall consist of items, functions, and criteria pertaining to the hoist use and shall be a part of an operational maintenance and inspection log. One of the following signal systems shall be provided:

(a) An approved signal device shall be provided to enable persons on each landing to signal the operator to stop and an emergency bell shall be provided to signal the operator to return to the bottom landing.

(b) An approved type voice communication system shall be provided between the car and landings and the project manager or job site superintendent's office.

R 408.7080 Authorized uses.

Rule 80. Section 26.6.1 of the ANSI A10.4 standard is amended to read as follows:

26.6.1 (1) The only persons permitted to ride on a personnel hoist are workers and other authorized personnel associated with the work being done.

(2) A personnel hoist may be used for carrying materials if it is designed and installed for the type of load to be used and if no passengers are carried during the time materials are being carried except those necessary to handle the materials.

(3) The load on a personnel hoist shall not exceed the maximum rated load established by the department.

(4) Hoists shall be operated by competent, qualified, and authorized personnel using manual operating devices of the continuous pressure type located inside the hoist car only.

CHAPTER 7. SEWER LIFT STATION PERSONNEL ELEVATORS

R 408.7081 Applicability.

Rule 81. The rules in this subpart apply to electric powered elevators used in sewage lift stations.

R 408.7082 Public access.

Rule 82. A sewage lift station personnel elevator shall not be accessible to the general public and shall be limited to use by employees only.

R 408.7083 Location, counterweights, and speed.

Rule 83. (1) The elevator may be installed in the entrance well.

(2) When counterweights and buffers are provided, the applicable rules shall apply.

(3) The rated speed of a car shall not exceed 35 feet per minute.

R 408.7084 Guarding exposed equipment.

Rule 84. Exposed gears, sprockets, tape or rope sheaves, drums of selectors, floor controllers, signal machines and the ropes, chains or tapes for driving them shall be guarded to protect against accidental contact.

R 408.7085 Supports and foundations.

Rule 85. (1) Machines, machinery, and sheaves shall be supported and maintained in place so as to prevent any part from becoming loose or displaced.

(2) Supporting beams shall be of steel. Beams are not required under machines, sheaves and machinery or control equipment which are supported on floors provided that the floors are designed and installed to support the load imposed on the floor.

R 408.7086 Distance from car platform to floor level.

Rule 86. The distance from the top of a car platform at the lowest landing shall be not more than 20 inches above the floor level. The means of descent from the car platform shall not constitute a hazard.

R 408.7087 Car and counterweight clearances.

Rule 87. (1) If a car platform is level with the lowest landing, then the car buffer striker plates shall not be in contact with the buffers.

(2) If the car is at its extreme limit of normal travel, then there shall be not less than 6 inches between the top of the car crosshead and the nearest obstruction.

(3) If the counterweights are resting on their buffers, then there shall be not less than 3 inches between the top of the car crosshead and the nearest obstruction.

(4) If the car is resting on its buffers there shall be not less than 3 inches clearance between the top of the counterweights and the nearest obstruction.

(5) The clearances between the car and the hoistway enclosure, hoistway sill, or any obstruction shall be not less than 3/4 inch.

(6) The clearance between the car platform sill and hoistway edge shall be not more than 5 inches.

(7) The underside of a projection into the hatch shall be beveled at an angle of not less than 75 degrees with the horizontal unless protected by a safety device to stop the ascending car.

(8) The top of the lower landing entrance shall be provided with a safety device to stop the ascending car if for any reason an overhanging obstruction on the car comes in contact with a shear hazard.

R 408.7088 Landing openings.

Rule 88. (1) If an upper landing side entrance door is provided, the entrance shall be not less than 6 1/2 feet in height.

(2) The top of the hoistway shall be provided with an overlapping, self-locking hinged cover designed to lock the closed side entrance door when the lift station is unoccupied.

R 408.7089 Locking devices.

Rule 89. (1) The hinged cover and the upper landing side entrance door, when provided, shall be provided with a mechanical latch and an electrical contact designed to be operated from inside the hoistway.

(2) A locking device shall be provided to prevent the top hinged cover from locking the upper landing side entrance door when the lift station is occupied.

R 408.7090 Guide rails.

Rule 90. (1) A car and counterweight shall be provided with guide rails of steel.

(2) A guide rail shall be securely fastened with through bolts or clips of strength, design and spacing as follows:

(a) A guide rail and its fastenings shall not deflect more than 1/4 inch under normal operations.

(b) A guide rail and its fastenings shall withstand the application of the safety, when stopping the car with a rated load or when stopping the counterweights.

(c) A guide rail shall rest on supports and extend at the top of the hoistway to prevent the guide shoes from running off the guide rail in case the car or the counterweight travels beyond the terminal landings.

R 408.7091 Frames, enclosures, platforms, capacity, and final limits.

Rule 91. (1) A car frame and platform shall be of metal. Frame members shall be securely bolted and braced. The factor of safety shall not be less than 4 with a uniformly distributed rate load.

(2) The car shall be enclosed to the extent necessary to afford reasonable protection.

(3) The platform area shall not exceed 5 square feet.

(4) The rated capacity shall be not less than 300 pounds.

(5) The limit of travel for the elevator shall be not more than 50 feet.

R 408.7092 Emergency exits.

Rule 92. A car shall be provided with an emergency exit giving egress from the car to an emergency ladder from any location in the hoistway and shall be provided

with electrical contacts to prevent movement of the car while the emergency exit is open.

R 408.7093 Safeties and governors.

Rule 93. (1) A car shall be provided with a car safety capable of stopping and sustaining the car with a rated load.

(2) The car safety shall be of the inertia or other type approved by the board, operated as a result of the breakage of the hoisting mechanism or by a speed governor. A governor of the speed-governor type shall operate to set the safety at a speed of not more than 175 feet per minute and on breakage of the suspension means. The safety shall operate without appreciable delay and independently of the governor speed action.

(3) If a speed governor is used, then it shall be located where there is sufficient space for full movement of the governor parts and where the governor cannot be struck by the car or counterweight in case of overtravel.

(4) A safety operated switch shall be provided to open the motor-control circuit and the brake-control circuit before or at the time the safety applies.

(5) A governor rope shall be of iron, steel, Monel Metal or phosphor bronze not less than 1/4 inch in diameter. Tiller-rope construction shall not be used for a governor rope.

(6) An elevator of the winding-drum type or roller chain drive type shall be provided with a slack-rope device of the manually reset type which will remove the power from the motor and brake if the car is obstructed in its descent and the hoisting chain or rope slackens.

(7) A car safety device which depends upon completion of maintenance of an electric circuit for application of the safety shall not be used. A car safety shall be applied mechanically.

(8) Cast iron shall not be used in construction of any part of a car safety, the breakage of which would result in failure of the safety to function to stop and sustain the car.

(9) A test of a car safety shall be made with a rated load in the car before the elevator is put into service. Governor operation of an instantaneous-type safety shall be tested at rated speed by tripping the governor by hand. A safety operated as the result of the breaking of the hoisting mechanism shall be tested by obtaining the necessary slack rope to cause it to function.

(10) An overspeed governor shall be provided for a traction machine.

R 408.7094 Driving machines and sheaves.

Rule 94. (1) A sprocket, winding drum, traction sheave and overhead and deflecting sheave shall be of cast iron or steel. The diameter of a sheave shall not be less than 30 times the diameter of the wire hoisting rope. The rope grooves shall be machined, except where 8 x 19 steel ropes are used. Where 8 x 19 steel ropes are used, the diameter of drums and sheaves may be reduced to 21 times the diameter of the rope.

(2) The factor of safety, based on the static load, that is, the rated load plus the weight of the car or chains, ropes and counterweights, to be used in the design of a driving machine and sheave, shall be not less than either of the following:

(a) Eight for wrought iron and steel.

(b) Ten for cast iron, cast steel and other material.

(3) A set screw fastening shall not be used instead of a key or pin if the connection is subject to torque or tension.

(4) A friction-gearing or clutch mechanism shall not be used for connecting the sprockets, drum, or sheaves to the main driving gear.

(5) Worm gearing having cast-iron teeth shall not be used.

(6) A driving machine shall be equipped with an electrically released spring-applied brake.

(7) A single ground or short circuit, a counter-voltage, or a motor field discharge shall not prevent the brake magnet from allowing the brake to set when the operating device is placed in the stop position.

R 408.7095 Terminal stopping devices.

Rule 95. (1) Upper and lower normal terminal stopping devices operated by a car shall be provided and shall be set to stop the car at, or near, the upper and lower terminal landings. Upper and lower final terminal stopping devices operated by the car shall also be provided and shall be set to stop the car before it strikes either the overhead or obstruction at the lower floor level. A final terminal stopping device shall be provided on and operated by the driving machine of the winding drum type.

(2) The final terminal stopping device shall act to prevent movement of the car in both directions of travel. The normal and final terminal stopping devices shall not control the same switches on the controller unless 2 or more separate and independent switches are provided, 2 of which shall be closed to complete the motor and brake circuit in each direction of travel.

R 408.7096 Operation and operation devices.

Rule 96. (1) The operation at top and bottom landings shall be of the constant pressure type.

(2) The car operating device shall be of the constant pressure push button type with the face of the button not to project beyond the face of the button plate. The device shall be of the 2 hand control type.

(3) An emergency stop switch shall be provided on or adjacent to the car operating panel. A stop switch shall be of the manually opened and manually closed type with a red handle or button and conspicuously marked "Stop." Spring failure shall not prevent opening of the switch where springs are used.

R 408.7097 Control and operating circuits.

Rule 97. The design and installation of the control and operating circuits shall conform to all of the following:

(a) A control system which depends on completion or maintenance of an electric circuit shall not be used for any of the following:

(i) Interruption of the power and application of machine brake at the terminals.

- (ii) Stopping of the car when the emergency stop switch in the car is opened or when any of the electrical protective devices operate.
- (iii) Stopping the machine when the safety applies.
- (b) A spring used to actuate a switch, contactor, or relay to break the circuit to stop a car at the terminal shall be of the compression type.
- (c) The failure of a single magnetically operated switch or relay or contactor to release or operate in the intended manner, or the occurrence of a single accidental ground, shall not permit the car to run.

R 408.7098 Hoisting cables.

- Rule 98. (1) Only iron, low carbon steel, or steel wire cables with fibre cores, having the commercial classification "elevator wire cable," shall be used for suspension of an elevator car and counterweights. The wire material for a cable shall be manufactured by the open-hearth or electric furnace process or their equivalent.**
- (2) Suspension means shall be not less than 2 iron or steel wire cables having a diameter of not less than 1/4 inch.
 - (3) The factor of safety of the suspension means shall be not less than 7.
 - (4) The arc of contact of a wire rope on a traction sheave shall be sufficient to produce adequate traction under all load conditions.
 - (5) A wire rope anchored to a winding drum shall have not less than 1 full turn of rope on the drum when the car or counterweight has reached its limit of possible overtravel.
 - (6) A car or counterweight wire rope shall not be lengthened or repaired by splicing.
 - (7) The winding-drum end of a car and counterweight wire rope shall be secured by a clamp on the inside of the drum.
 - (8) The car or counterweight end of a wire rope shall be fastened by return loop, by individual tapered babbitted sockets, or by an alternate method approved by the board. A clamp of the U-bolt type shall not be used.

R 408.7099 Hoisting chains.

- Rule 99. (1) Only roller chain made of high quality alloy, heat treated steel with the following characteristics is acceptable for hoisting chains:**
- (a) Prestressed.
 - (b) Shot peened.
 - (c) In-line blanking.
 - (d) Deep case hardening of pins and bushings.
 - (2) Suspension means shall not be less than 2 separate roller chains, each chain having a tensile strength of not less than 3,500 pounds.
 - (3) The factor of safety of the suspension means shall be not less than 7.
 - (4) A chain shall have not less than 6 inches of chain available beyond the normal stopping point when the car has reached its extreme limits of travel.
 - (5) A chain end shall be fastened by standard master links.

R 408.7100 Wiring and lighting.

Rule 100. (1) Electric wiring shall be in rigid metal conduit or electrical metallic tubing.

(2) A traveling cable used between the car and hoistway wiring shall be in compliance with the Michigan electrical code.

(3) A fused disconnect main line switch externally operated shall be provided adjacent to the controller.

(4) Hoistway lighting shall be provided.

R 408.7101 Inspection and tests.

Rule 101. (1) An existing installation and a new elevator installation, after being placed in service, shall be subjected to maintenance inspections and tests.

(2) Maintenance inspections and tests of elevator car and counterweight safeties and governors shall be made at intervals of not more than 12 months.

(3) The owner or owner's authorized agent shall have maintenance inspections and tests made by a person qualified to perform them in the presence of an inspector in the employ of or authorized by the department, except where such an inspector is not available. When the required tests are made, the person or firm conducting the tests shall do both of the following:

(a) Submit to the department a statement upon a form furnished by it certifying that the tests have been conducted and further certifying to the results thereof.

(b) Attach to the governor rope a tag marked to show the date of the test and the name of the person or firm who conducted it.

(4) The distance between any 100 continuous links of roller chain, measured from centerline of pin, shall not be more than + or - 1% of the rated pitch of the chain being tested. For example, 100 links of standard series single strand #40 roller chain, which has a pitch length of 1/2 inch shall not be more than 50 1/2 inches or less than 49 1/2 inches.

(5) The inspection of chain links shall be made at not less than 3 points picked at random.

R 408.7102 Reshacking of hoisting ropes of drum-type machines.

Rule 102. The hoisting ropes of a power elevator having a drum-type driving machine with 1-to-1 roping shall be reshacked at the car ends at intervals not more than 24 months for a machine located below or at the side of the hoistway.

//PART I. GENERAL PROVISIONS//

R 408.8101 Rescinded.//Scope.

~~Rule 101. These rules establish administrative and operational procedures for implementation of the elevator safety act of 1967. They establish, for protection of the general public, minimum safety requirements for inspection, construction, installation, alteration, maintenance, repair, and operation of elevators.//~~

R 408.8103 Rescinded.//Definitions.

~~Rule 103. (1) As used in these rules:~~

- ~~-(a) "Act" means Act No. 227 of the Public Acts of 1967, as amended, being §408.801 et seq. of the Michigan Compiled Laws.~~
- ~~-(b) "Belt manlift" means a power-driven endless belt which has steps and handholds and which is used to transport persons in a vertical direction through successive floors or levels of a building or structure.~~
- ~~-(c) "Department" means the department of consumer and industry services.~~
- ~~-(d) "Electrical-powered, 1-man elevator" means an elevator that has a car platform area of not more than 5 square feet, a rated load of not more than 300 pounds, and a rated speed of not more than 100 feet per minute. It is for the exclusive use of certain designated operating and maintenance employees and is installed in any of the following:

 - ~~-(i) A grain or feed mill.~~
 - ~~-(ii) A chemical or alcohol distillery.~~
 - ~~-(iii) A cement storage tower.~~
 - ~~-(iv) A radio tower.~~
 - ~~-(v) A similar structure that is not accessible to the general public.~~~~
- ~~-(e) "Examination" means a survey of the design and construction of elevators or elevator equipment by a dealer in elevators or elevator equipment or an approved insurance company.~~
- ~~-(f) "Hand powered, 1-man elevator" means an elevator which has a car platform area of not more than 5 square feet, which has a rated load of not more than 300 pounds, and which is operated from the car only by pulling on a stationary rope that is located in the hoistway and passing through or adjacent to the car platform. The elevator is for the exclusive use of the certain designated operating and maintenance employees and is installed in a grain or feed mill or a similar structure that is not accessible to the general public.~~
- ~~-(g) "Inspection" means the official determination by a general inspector of the condition of all parts of equipment on which the safe operation of an elevator depends.~~
- ~~-(h) "Special elevating device" includes other lifting or lowering apparatus which is guided as provided in section 3 of the act.~~
- ~~-(i) "Temporary inspection" means the inspection of a permanent elevator that is to be used on a temporary basis.~~
- ~~-(2) Terms defined in the act have the same meanings when used in these rules://~~

R 408.8108 **Rescinded.**//Applicability of national standards.

~~Rule 108. (1) The standards contained in the American society of mechanical engineers (ASME) safety code for elevators and escalators, ASME A17.1-1993 and ASME A17.1a-1994 addenda, hereinafter referred to as "code," are adopted in these rules by reference as rules for elevators in this state, except as set forth in subrule (2) of this rule. The ASME codes may be purchased from the American Society of Mechanical Engineers, 22 Law Drive, Fairfield, New Jersey 07007-2900, or the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, Box 30255, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$114.00 each. A copy of the code published by the American society of mechanical engineers (ASME) is on file in the Lansing office of the department of consumer and industry services and is available for public inspection.~~

~~(2) The following rules of the ASME A17.1-2000 ASME code are not adopted in these rules: 101.3d, 102.2(c)(3), 201.2, 210.4(b) 303.2c, 500.1, 500.2a, 500.7, 501.4b, 701.5b, 802.3e, 1000.1, 1000.1a, 1000.1b, 1000.1c(3), 1004.1, 1007.1, 1010.1 to 1010.12, 1200.1, table 1200, 2000.1b, 2000.1c, 2000.1e, 2000.10a, 2000.10b, 2001.10a, 2001.10b, 2100.10b, 2101.6d, and 2400.1 to 2411.2b. 2.5.1.5.3, 2.8.2.3.2, 2.11.1.3, 2.11.1.4, 2.11.7.2, 2.14.2.2(f), 2.14.2.6, 2.14.5.8.2, 2.16.5.1.3, 2.22.2, 2.26.1.5, 2.26.4.2, 3.19.5, 5.3.1.1.1, 5.3.1.1.2, 5.3.1.1.3, 5.3.1.1.4, 5.3.1.2.1, 5.3.1.14.3, 5.4.10.2, 8.6.5.8, 8.6.10.4, 8.10.1.1.3, 8.11.1.1, 8.11.1.1.1, 8.11.1.1.2.//~~

R 408.8111 **Rescinded.**//Existing freight elevators; classification.

~~Rule 111. Existing freight elevators are classified in these rules in accordance with the following descriptions:~~

~~(a) Class I—Only the operator or persons necessary to handle freight are allowed to ride.~~

~~(b) Class II—Not to be occupied by any person while the elevator is in motion, but may be occupied only for the purpose of loading or unloading freight.~~

~~(c) Class III—Not to be entered or occupied by any person at any time.//~~

R 408.8121 **Rescinded.**//Registration of elevators.

~~Rule 121. An elevator shall be registered by the owner or user stating the location, type, capacity, name of manufacturer, and purpose for which it is used. This registration shall be made on a form furnished by the department.//~~

R 408.8122 **Rescinded.**//Identification plates and tags.

~~Rule 122. (1) The holder of a certificate of operation shall permanently attach to the elevator in an approved area an identification plate showing the rated load and the serial number of each elevator.~~

~~(2) One serial number tag will be furnished and shall be permanently attached to the elevator machine controller.~~

~~(3) Identification plates and tags shall be furnished by the department and remain the property of the department.//~~

R 408.8123 **Rescinded.**//Accident reports.

~~Rule 123. The holder of a certificate of operation shall notify the department within 48 hours of every accident involving personal injury or damage to the elevator. The department may investigate all such accidents.//~~

R 408.8124 **Rescinded.**//Responsibility for elevator operation and maintenance.

~~Rule 124. (1) Responsibility for the operation and maintenance of elevators shall be as follows:~~

~~(a) The person, firm, or corporation installing, repairing, relocating, or altering an elevator shall be responsible for its operation and maintenance until the certificate of operation has been issued, except as provided for in R 408.8135 of these rules and shall be responsible for all tests of new, repaired, relocated, and altered equipment until the certificate of operation has been issued.~~

~~-(b) The holder of a certificate of operation or his duly appointed agent shall be responsible for the safe operation and proper maintenance of the elevator. The holder of the certificate of operation shall be responsible for all periodic inspections and tests, securing the renewal of the certificate of operation, and the compliance with correction orders.~~

~~-(c) The licensed contractor holding a temporary certificate of operation shall be responsible for the safe operation and maintenance of the elevator during the period that the temporary certificate is in force.~~

~~-(2) Safety tests shall be performed by personnel approved by the department.//~~

R 408.8131 **Rescinded.**//Commissions of special elevator inspectors.

~~Rule 131. (1) A commission to inspect elevators in accordance with section 11 of the act may be issued by the director to a designated holder of a special certificate of competency when the fee has been paid and a written request is received from a company authorized to insure elevators in this state. Such a commission shall not be transferable. The commission shall be retained by the company and a commission credential card shall be issued to the special inspector. Both shall be returned when services of the inspector terminate.~~

~~-(2) A commission shall expire annually on December 31. A commission may be renewed by payment of a renewal fee and return of the expired card and commission renewal form.//~~

R 408.8132 **Rescinded.**//Examinations by elevator and equipment dealers and insurance companies.

~~Rule 132. Nothing in the act shall be construed to prevent the examination of elevators by dealers in elevators or elevator equipment or any approved insurance company. Such examination shall not be deemed to be an inspection within the provisions of the act.//~~

R 408.8133 **Rescinded.**//New, altered, or relocated elevators; when not to be used.

~~Rule 133. A new, altered, or relocated elevator shall not be placed into service until it has been inspected by, and tested in the presence of, a general inspector, except as provided in section 15 of the act.//~~

R 408.8134 **Rescinded.**//Frequency of inspections.

~~Rule 134. Rule 1001.1 of the ASME A17.1 code is amended to read as follows:~~

~~1001.1. 8.11.1.3 All elevators shall be inspected by a general elevator inspector pursuant to the following schedule:~~

~~-(a) Passenger and freight elevators, barrier free lifting devices, escalators, moving walks, belt manlifts, and special elevating devices shall be inspected at least once every 12 months.~~

~~-(b) Dumbwaiters, inclined lifts, 1-person elevators, hand-powered; 1-person elevators, electric-powered; wheelchair elevating devices in buildings other than private residences; and sidewalk elevators shall be inspected at least once every 24 months.~~

~~-(c) Personnel hoists shall be inspected at least once every 30 days.~~

~~-(d) Elevating devices in private residences shall be inspected only at the discretion of the department or owner.~~

~~-(e) More frequent inspections may be scheduled at the discretion of the department or owner.//~~

R 408.8135 **Rescinded.**//~~Temporary use of permanent elevators during construction.~~

~~—Rule 135. (1) A licensed elevator contractor may request a temporary certificate of operation to permit the use of a passenger or freight elevator before its completion for carrying workmen, authorized personnel, or materials. Such elevator shall not be used until it has been approved by a general inspector, the required fee has been paid, and a temporary certificate of operation has been obtained. Such certificate shall be issued for a period not to exceed 90 days. Renewals may be granted at the discretion of the department.~~

~~—(2) Permanent elevators used temporarily during construction shall be inspected every 30 days.//~~

R 408.8136 **Rescinded.**//~~Discontinuance of operation.~~

~~—Rule 136. A general inspector may seal an elevator out of service and void the certificate of operation as provided in section 19 of the act or if any of the following conditions exist:~~

~~—(a) The holder of the certificate of operation fails to pay the required fee.~~

~~—(b) The holder of the certificate of operation fails to report an accident as required by these rules.~~

~~—(c) The elevator has been constructed, installed, altered, maintained, or repaired by a person, firm, or corporation not approved by the department.//~~

R 408.8137 **Rescinded.**//~~Inspection reports and certificates of operation.~~

~~—Rule 137. (1) A general inspector shall forward to the department a report of each inspection stating the condition of the elevator. The inspection report shall be filed with the department within 10 days after the inspection has been completed.~~

~~—(2) A report indicating an elevator has been sealed out of service shall be forwarded to the department within 48 hours.~~

~~—(3) The director shall issue a certificate of operation for a capacity not to exceed that named in the inspection report.//~~

R 408.8138 **Rescinded.**//~~Correction orders.~~

~~—Rule 138. (1) If upon inspection an elevator is deemed to be in an unsafe condition, or if the owner or user has not complied with these rules, the general inspector shall issue to the holder of the certificate of operation a written correction order stating corrections required and a time limit within which the correction order shall be complied with. The owner or user shall notify the department in writing as soon as full compliance is effected. Notification shall be on forms furnished by the department.~~

~~—(2) If in the judgment of the general inspector, failure to make such corrections would endanger human life, compliance with the correction order may be required immediately.~~

~~—(3) Noncompliance with the correction order may subject the holder of the certificate of operation to the penalty provisions of the act.//~~

R 408.8139 **Rescinded.**//~~Disconnecting means for new and altered elevators.~~

~~–Rule 139. The disconnecting means for all elevators and escalators that have 208 volts alternating current (VAC) nominal, 3 phase, shall be a heavy duty type means and feature a dual cover interlock.//~~

R 408.8141 **Rescinded.**//Special elevating devices.

~~–Rule 141. (1) Special elevating devices within the scope of the act shall meet the requirements established by the department and the rules promulgated by the board.~~

~~–(2) The devices specified in subrule (1) of this rule shall receive special consideration from the department as to the safety features incorporated into them before they may be approved for installation. A permit to install a special elevating device shall be obtained from the department in accordance with section 15 of the act.~~

~~–(3) All of the following provisions apply to an electric powered, barrier free lifting device used to raise or lower a person from one level to another, hereinafter referred to as a "device."~~

~~–(a) A device shall have a vertical rise of not more than 15 feet and shall serve not more than 2 floors. Three landings are allowed when there is an intermediate level between 2 floors.~~

~~–(b) The installation of a device in other than a 1 or 2 family dwelling shall be limited to those structures that have a total square footage of not more than 20,000 square feet. A device may be installed in a building that has a total square footage of more than 20,000 square feet if the area to be accessed is 10,000 square feet or less. Only 1 device per structure is allowed.~~

~~–(c) A device shall not be used for moving freight.~~

~~–(d) The rated speed of a device shall not be more than 30 feet per minute. If the distance to be traveled by a device is more than 6 feet, the minimum speed of the device shall be not less than 15 feet per minute.~~

~~–(e) All exposed equipment on a device shall be guarded to protect against accidental contact which could cause bodily injury.~~

~~–(f) Where a recessed pit is not provided, a permanent structural ramp and landing shall be provided as required for access to and from the platform and shall be built in accordance with the ramp and landing specifications contained in R 408.30401 et seq. of the Michigan Administrative Code and be constructed to safely carry the rated capacity of the device.~~

~~–(g) The frame of a device shall be constructed of metal.~~

~~–(h) The clear floor area of the car below the handrail shall be a minimum of 54 inches long and a minimum of 32 inches wide and shall not be more than 13 square feet. The controls shall be located so as to not infringe upon the minimum 32 inch by 54 inch clear space below the handrail.~~

~~–(i) The rated capacity of a device shall be not less than 650 pounds and the maximum capacity shall be not more than 750 pounds.~~

~~–(j) A production model of a device shall be subjected to a static load test to establish that all structural components of the device will withstand stresses of 10 times the rated load of the device and to ensure a factor of safety of not less than 10. A registered professional engineer shall certify the safety factor and affix his or her signature and seal to the certification.~~

- ~~-(k) All welding shall be conducted in accordance with the standards established by the American welding society code for structural welding D1.1 90. The welding society code is adopted in these rules by reference and is available for inspection at the Lansing office of the Michigan department of consumer and industry services. The welding society code may be purchased from the American Welding Society, Inc., N. W. 7th Street, Miami, Florida 33125, or from the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, Box 30255, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$25.00 each.~~
- ~~-(l) The device shall be fully enclosed on the top and on any side which is not used as an exit or entrance. Device enclosures shall be in compliance with the requirements of ASME rule 204.2a.~~
- ~~-(m) A device door without openings, except for vision panels if provided, shall be provided at each entrance to the device and shall be provided with an electric contact device door or electric contact gate in compliance with the requirements of ASME rule 111.5. A door or gate handle shall be provided for manually operated doors and shall be of the lever or bar type. The top of the handle shall not be more than 48 inches above the device floor.~~
- ~~-(n) A handrail extending the full length of 1 long side of the platform shall be provided at a maximum height of 36 inches to the top of the handrail above the finished floor of the device on the control side. The bottom of the handrail shall be not less than 32 inches above the finished floor of the device.~~
- ~~-(o) Each device, except for direct plunger hydraulic devices, shall be provided with a safety mechanism and overspeed governor which shall, in the event the device descends at a rate of more than 150% of the rated speed, interrupt the electrical power supply to the brake and motor and grip the rails or by other means firmly bring the car, loaded with the rated load, to a stop within a traveling distance of 1.5 inches and hold it stationary. After use, the safety mechanism shall only be capable of release when the car is raised.~~ ~~-(p) The operating controls from any control station shall be of a momentary pressure automatic type. Push/pull type and recessed controls are prohibited. Metal tactile numbers shall be provided adjacent to device control buttons and switches.~~
- ~~-(q) The control station shall be mounted or installed on the side of the device within the reach of a person in a wheelchair. The controls shall be mounted at a height between 36 inches and 48 inches above the platform floor.~~
- ~~-(r) Hall controls shall be mounted on the latch side of the door and be located between 36 inches and 48 inches above the finished floor.~~
- ~~-(s) The control on the device shall include an emergency signaling alarm bell combination that is in compliance with the requirements of ASME rule 211.1 and which is operable at all times and an emergency stop switch as required by the provisions of ASME rules 210.2e and 211.1(1).~~
- ~~-(t) A separate fused disconnecting means or circuit breaker shall be provided in the machine room on a separate electrical circuit which is not accessible to the general public.~~
- ~~-(u) A slack cable switch, where required, shall comply with the requirements of ASME rule 210.2a.~~
- ~~-(v) The installation of pipes or ducts conveying gases, vapors, or liquids in hoistways, machine rooms, or machinery spaces shall comply with the requirements of ASME rule~~

~~102.2. Only such electrical wiring used directly in connection with a device may be installed inside the hoistway, machine room, or machinery spaces and shall comply with the requirements of ASME rule 102.1.~~

~~—Electrical wiring and components in a device and its installation shall comply with the requirements of the national electrical code, NFPA 70-1996, which is adopted in these rules by reference and is available for inspection at the Lansing office of the Michigan department of consumer and industry services. The national electrical code may be purchased from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, or the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, Box 30255, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$30.00 each.~~

~~—(w) The hoistway shall be fully enclosed. The hoistway enclosure and the entrance assemblies shall have a fire resistance rating of not less than 1 hour.~~

~~—A permanent weathertight enclosure shall be provided when a device is exposed to the outside elements. The enclosure shall be made of approved construction materials in accordance with R 408.30401 et seq. of the Michigan Administrative Code. The enclosure shall not deflect more than 1 inch when subjected to a force of 100 pounds applied horizontally at any point.~~

~~—(x) The hoistway entrances of a device shall be guarded by doors of unperforated construction. The doors shall be of the delayed self-closing type, not less than 80 inches in height, and provide a minimum clear opening width of 32 inches if the door is on the short side of the platform and 40 inches of clear opening width if the door is on the long side of the platform. The doors shall have an approved combination mechanical lock and electric contacts. The door shall be openable only if the car platform is within 1/2 inch of the floor level.~~

~~—(y) The running clearance between the edge of the platform sill and the landing sill shall be not less than 3/8 of an inch nor more than 3/4 of an inch. The distance between the edge of the hoistway landing sill to the hoistway face of the door shall not be more than 3 inches. The distance between the hoistway face of the landing doors and the device door shall not be more than 5 inches.~~

~~—(z) A minimum 30-second, noninterference feature shall be provided and shall assure that the first call registered will control the operation of the device.~~

~~—(aa) The device platform floor surfacing shall be of a slip-resistant type.~~

~~—(bb) Where a platform of a device does not have an under-platform clearance of 48 inches or the maximum rise of the device, whichever is less, when resting on its bottom mechanical limits, the device shall incorporate a means which, when appropriately positioned during maintenance, will mechanically prevent the platform from descending closer than 48 inches to the pit floor at rated speed with rated load in the down direction. Instructions shall be posted in the pit.~~

~~—(cc) Platform guide rails shall be of metal construction. Steel construction shall be in compliance with the requirements of ASME rule 200.2a. Metals other than steel shall be in compliance with the requirements of ASME rule 200.2b. The top and bottom ends of each run of guide rail shall be so located in relation to the extreme positions of travel of the device that the device guiding members cannot travel beyond the ends of the guide rails. Fastenings, deflections, and joints shall be in compliance with the requirements set forth in ASME rules 200.2, 200.5, and 200.8.~~

~~-(dd) The driving machine shall be of the traction or direct-plunger hydraulic type. Traction machines shall comply with the requirements of ASME section 208. Terminal stopping devices shall be provided for traction driving machines and shall be in compliance with the requirements of ASME section 209. Tests for traction driven machines shall be conducted in accordance with the requirements of ASME section 1002. Direct-plunger hydraulic driving machines shall comply with the requirements of ASME sections 302 and 303 and R 408.8636a and R 408.8638 of the Michigan Administrative Code. Terminal stopping devices and control circuits shall be provided for direct-plunger machines and shall comply with the requirements of ASME rules 305.1 and 306.9. Tests for hydraulic machines shall be conducted in accordance with the requirements of R 408.8639 of the Michigan Administrative Code.~~

~~-(ee) Machines, machinery, and sheaves shall be so supported and maintained in place to prevent any part from becoming loose or displaced under the conditions imposed in service and shall comply with the requirements of ASME section 105.~~

~~-(ff) A device shall be serviced and examined for defects by a licensed elevator journeyman at least once every 90 days.~~

~~-(gg) A stop switch in compliance with the requirements of ASME rule 210.2(e) shall be provided on the top of a device.//~~

R 408.8145 **Rescinded.**//Dormant elevators.

~~Rule 145. (1) An elevator which is inactive for 1 year shall be classified as a dormant elevator and placed out of service in the following manner:~~

~~-(a) The hoisting cables shall be removed and the car and counterweights lowered into the pit.~~

~~-(b) The power supply on a power elevator shall be permanently disconnected by removal and taping of the power leads to disconnecting means.~~

~~-(c) Landing entrances shall be protected by having the hoistway doors blocked in a closed position from inside the hoistway.~~

~~-(2) Before a dormant elevator can be placed in service, it shall be reinspected by the department and shall conform to rule 1001.8 of the standard.//~~

R 408.8149 **Rescinded.**//Examination for license or certificate of competency; journeyman.

~~Rule 149. The board may delegate to the elevator division the authority to administer the written or oral examinations, or both, required for journeymen's licenses. The minimum passing grade for an applicant for a license or a certificate of competency shall be 70%. An applicant who fails to attain the minimum passing grade is not eligible for reexamination for 60 days after the examination, except as otherwise required by the act or by special permission of the board. A new application form and payment of the prescribed fee is required each time an applicant is examined.//~~

R 408.8150 **Rescinded.**//Elevator contractors' and journeymen's licenses; type classification.

~~Rule 150. (1) Elevator contractors' licenses and elevator journeymen's licenses are classified as follows:~~

- ~~-(a) Type A, which covers the construction, repair, installation, alteration, and maintenance of any type of elevating device within the scope of the act.~~
- ~~-(b) Type B, which covers the repair and maintenance of any type of elevating device within the scope of the act.~~
- ~~-(c) Type C, which covers specific installations designed for particular and special purposes for which the applicant can prove that he or she is qualified.~~
- ~~-(2) More than 1 type of device may be combined or added to 1 Class C elevator contractor's license if the applicant has passed a written examination for each type of device.//~~

R 408.8151 **Rescinded.**//Fees:

~~Rule 151. (1) Fees shall be paid in accordance with the following schedule:~~

Commissions to inspect elevators	
Commission	\$25.00.
Commission renewal	\$25.00.
Examination for certificates of competency	
Certificate of competency examination	\$35.00.
Elevator contractor's licenses	
Elevator contractor's license and renewal	\$75.00.
Elevator contractor's examination	\$45.00.
Elevator journeyperson license and renewal	\$20.00.
Elevator journeyperson examination	\$25.00.
Installation permits	
Base permit fee for each of the following devices:	\$200.00.
-Passenger elevator	
-Freight elevator	
-Mine elevator	
-Inclined elevator	
-Limited use/limited application elevator	
-Private residence elevator	
-Special purpose personnel elevator	
-Dumbwaiter	
-Material lift	
Plus \$25.00 for each hoistway opening	
Escalator	\$200.00.
Moving walk	\$200.00.
Power sidewalk elevator	\$200.00.
Rooftop elevator	\$200.00.
Personnel hoist, initial inspection	\$350.00.
Personnel hoist tower rise	\$150.00.
Belt personlift	\$175.00.
Special elevating device	\$200.00.

Barrier free lifting device	\$200.00.
Private residence platform lift and private residence stairway chairlift	\$75.00.
Platform lift and stairway chairlift in buildings other than private residence	\$100.00.
Private residence outdoor inclined lift	\$75.00.
Outdoor inclined lift at buildings other than private residence	\$100.00.

~~A final inspection fee is included in the installation permit fee. If a scheduled final inspection is canceled without due notice to the department, or if the elevator is not complete, in the judgment of the general inspector, an additional fee of \$300.00 shall be charged to the elevator contractor.~~

~~Major alteration permits~~

First alteration (including 1 final inspection)	\$110.00.
Each additional alteration	\$45.00.
Maximum alteration fee	\$280.00.

~~Certificate of operation~~

Annual certificate of operation	\$35.00.
Temporary certificate of operation	\$140.00.

~~Inspection by general inspector~~

Inspection	\$110.00.
Follow up	\$110.00.

~~Special services~~

~~The department may provide, upon written request, special services that are not otherwise covered in the fee structure. The charge for this service shall be at the rate of \$50.00 per hour including travel time.~~

~~(2) Fees that are required pursuant to the provisions of the act shall be paid to the department. Checks or money orders shall be made payable to the "State of Michigan."//~~

~~R 408.8152 **Rescinded.**//Supervising employees.~~

~~Rule 152. (1) When a contractor's license is based on the qualification of a supervising employee, termination of employment of a supervising employee shall result in the suspension of the license 90 days subsequent to such termination of employment and the license shall remain suspended until another supervising employee is certified for the employer by the board. The supervising employee and the employer shall each notify the department in writing when the termination of the employment of the former occurs.~~

~~(2) A person serving as supervising employee of a contractor may not concurrently serve as supervising employee of another contractor. A supervising employee shall be employed on a full-time basis by the contractor.//~~

~~R 408.8153 **Rescinded.**//Renewal of contractor's licenses and commissions.~~

~~Rule 153. A contractor's license and a commission which has expired may be renewed within 60 days after the date of expiration without examination upon payment of the required renewal fee. A contractor's license and a commission which is not so renewed is considered revoked.//~~

R 408.8161 **Rescinded.**//Violations; penalties-

~~Rule 161. Any person, firm, or corporation who shall refuse to comply with, or who shall assist in the violation of, any of the provisions of these rules, or who, in any manner hinders, obstructs, resists, prevents, causes unreasonable delay, or in any manner interferes with the inspectors in the performance of any duty herein imposed, or shall refuse to permit such inspectors to perform their duty by refusing them entrance at reasonable hours to buildings or places for the purpose of enforcement of these rules, shall be subject to the fines and penalties as provided by the act.//~~

R 408.8171 **Rescinded.**//Appeals to the board:

~~Rule 171. (1) Any person, firm, or corporation aggrieved by any decision, ruling, or order of the director or of the department may appeal within 15 days from date of mailing of the decision, ruling, or order to the board, for a hearing before the board in accordance with section 8(d) of the act. An appeal shall specify the reasons and the relief sought and shall be submitted to the director for presentation to the board.~~

~~(2) A fee of \$25.00 shall be deposited with the department at the time the appeal is filed. Payment shall be by cash, money order, or certified check made payable to "Treasurer - State of Michigan."~~

~~(3) The board shall set a time for hearing of the appeal and give notice by mail to the appellant at least 10 days prior to the date set for hearing.~~

~~(4) A request for an adjournment shall be filed in writing at least 5 days prior to the date set for hearing. The board, or the director, may for good cause shown grant an adjournment.~~

~~(5) If the appellant fails to appear at the time set for hearing, the board may proceed with the hearing and decide the case in the absence of the appellant. The board may affirm, modify or set aside the ruling of the department and shall notify the director and the appellant in writing of its decision. The department shall refund the appeal fee if a decision is rendered in favor of the appellant.//~~

//PART II. EXISTING INSTALLATIONS//

R 408.8201 **Rescinded.**//Applicability of rules and manual.

~~Rule 201. The sections listed in R 408.8203 outline the minimum requirements, regular maintenance, and approved safety practices for elevators as defined in section 3 of the act. All other approved existing features or components of the elevator shall comply with these rules and shall be maintained as described in the American standard inspectors' manual ASME/ANSI A17.2-1988 and ASME/ANSI A17.2a-1989 addenda, which is adopted in these rules by reference and is available for inspection at the Lansing office of the Michigan department of consumer and industry services. The manual may be purchased from the American Society of Mechanical Engineers, 22 Law Drive, Fairfield, New Jersey 07007-2900, or from the Michigan Department of Consumer and Industry~~

~~Services, 7150 Harris Drive, Box 30255, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$60.00 each.//~~

~~R 408.8202 **Rescinded.**//Elevators operated from car only.~~

~~—Rule 202. Elevators operated from the car only shall be provided with an approved means of opening the landing door, from the landing side, when the car is in the unlocking zone.//~~

~~R 408.8203 **Rescinded.**//Applicability of sections of standard.~~

~~—Rule 203. The following sections of the standard shall apply to all existing installations:~~

~~—(a) Electrical wiring Section 102. (b) Hydraulic piping and fittings Section 303.~~

~~—(c) Safety tests Sections 1000, 1001, and 1100.~~

~~—(d) Maintenance and repairs Section 1002.~~

~~—(e) Alterations Sections 1200, 1201, and 1212.//~~

~~R 408.8205 **Rescinded.**//Servicing and examination of power elevators; frequency; exception.~~

~~—Rule 205. A power elevator, except a private residence elevator, and a private residence inclined lift shall be serviced and examined for defects by a licensed elevator journey person at least once every 90 days, except for the following devices which shall be serviced and examined at least once every 180 days:~~

~~—(a) Dumbwaiters.~~

~~—(b) One person elevators, electric powered.~~

~~—(c) Wheelchair elevating devices in buildings other than private residences.~~

~~—(d) Inclined lifts in buildings other than private residences.~~

~~An accessible written record of all service and examination shall be maintained in the machine room or on-site if a machine room does not exist.//~~

~~R 408.8206 **Rescinded.**//Servicing and examination of power elevators; compliance with rules; exception.~~

~~—Rule 206. A power elevator, except a private residence elevator and a private residence inclined lift, shall be serviced and examined in accordance with R 408.8201 to R 408.8203.//~~

~~R 408.8211 **Rescinded.**//Enclosures of hoistways.~~

~~—Rule 211. Rules 100.1 and 100.2 of the standard shall apply to enclosures of hoistways.//~~

~~R 408.8212 **Rescinded.**//Projections into hoistway.~~

~~—Rule 212. (1) Ledges, floor beams, sills, saddles, timbers, and other similar projections in front of car openings projecting more than 2 inches from the inside of the general surface of the hoistway enclosure shall be fitted with smooth, beveled guards set directly under the projections. The angle of such bevels or guard plates shall be not less than 60 degrees, and preferably 75 degrees from the horizontal.~~

~~—(2) Windows, recesses, or offsets, except door lintels, in the general surface of the hoistway enclosure which are opposite car openings, shall be protected by curtain walls,~~

~~grating or vertical bars, set flush with the general surface of the hoistway. Except to protect windows, such curtain walls, grating or vertical bars will not be required where a car gate on the car opening opposite such recess or offset is equipped with a mechanical lock which prevents opening of such gate except when the car is level with a hoistway door on that side.//~~

R 408.8213 **Rescinded.**//~~Access to machine rooms and machinery spaces.~~

~~–Rule 213. (1) A permanent, safe, and convenient means of access to elevator machine rooms and overhead machinery spaces shall be provided for authorized persons.~~

~~–(2) Access doors to machine rooms shall be provided with locks and kept closed and locked.~~

~~–(3) Access to an elevator machine room from the hoistway is prohibited.//~~

R 408.8214 **Rescinded.**//~~Lighting and ventilation of machine rooms and spaces.~~

~~–Rule 214. Rule 101.5 of the standard shall apply to lighting and ventilation of machine rooms and machinery spaces.//~~

R 408.8215 **Rescinded.**//~~Storage of materials.~~

~~–Rule 215. Rule 101.2 of the ASME code shall apply to the storage of materials.//~~

R 408.8216 **Rescinded.**//~~Foreign pipes.~~

~~–Rule 216. The inspector shall order the removal, from existing elevator hoistways or machine rooms, of any pipe conveying gases, liquids, or vapors which, if discharged into the hoistway or machine room or ignited, might endanger life.//~~

R 408.8217 **Rescinded.**//~~Enclosure of machine rooms.~~

~~–Rule 217. Rules 101.1a and 101.1b of the standard shall apply to enclosure of machine rooms.//~~

R 408.8218 **Rescinded.**//~~Guarding of exposed equipment.~~

~~–Rule 218. Rule 104.1 of the standard shall apply to guarding of exposed equipment.//~~

R 408.8219 **Rescinded.**//~~Pits and spaces below hoistways.~~

~~–Rule 219. (1) Rule 106.1 of the standard shall apply to pits.~~

~~–(2) Rule 109.1 of the standard shall apply to protection of spaces below hoistways.//~~

R 408.8220 **Rescinded.**//~~Protection of hoistway landing openings.~~

~~–Rule 220. (1) Rule 110.1 of the standard shall apply, where applicable for passenger elevators, to protection of hoistway landing openings.~~

~~–(2) Exception: Present hoistway doors of wire glass may be continued in use if they are covered or replaced by unperforated metal of not less than no. 18 gauge sheet steel or equivalent material so supported and braced as to deflect not over 1 inch when subjected to a force of 100 pounds applied horizontally at any point. As an alternative to covering doors and to reduce the size of single vision panels, members of noncombustible material and substantial construction shall be securely fastened to the hoistway side of doors and located in such a manner as to reject a ball 6 inches in diameter.//~~

R 408.8221 **Rescinded.**//Car and counterweight buffers.

~~Rule 221. Section 201 of the standard shall apply to car and counterweight buffers.//~~

R 408.8222 **Rescinded.**//Door locks and keys.

~~Rule 222. (1) Rule 111.1a of the standard shall apply to hoistway door lock devices.~~

~~(2) Emergency key and keyways especially designed to prevent easy duplication, that will unlock the hoistway door nearest the bottom terminal landing to permit easy access to the top of the car and the bottom terminal landing to permit access to the pit irrespective of the position of the car, shall be provided for each elevator having a type of operation that operates the elevator from the landing side of the hoistway and the hoistway door interlocks keep the doors in the locked position when the car is not within the landing zone.~~

~~(3) Subrule (2) of this rule does not apply when access switches are provided.//~~

R 408.8223 **Rescinded.**//Emergency release buttons.

~~Rule 223. Devices to render hoistway door interlocks or hoistway or car door or gate electric contacts inoperative are prohibited.//~~

R 408.8224 **Rescinded.**//Door hold open devices.

~~Rule 224. Door hold open devices may be retained if the hoistway door closes before the elevator leaves the landing zone.//~~

R 408.8225 **Rescinded.**//Plugged door contacts and locks.

~~Rule 225. The department shall require the relocation of car gate contacts, hoistway door or gate contacts or interlocks where such devices are found tied or blocked so to render them inoperative.//~~

R 408.8226 **Rescinded.**//Closed position of hoistway doors, car doors, and gates.

~~Rule 226. Rule 111.7 of the ASME code shall apply to the closed position of hoistway doors, car doors, and gates.//~~

R 408.8227 **Rescinded.**//Platforms.

~~Rule 227. The underside of wood platforms and the exposed surfaces of wood platform stringers of passenger elevators shall be protected against fire by 1 of the following methods:~~

~~(a) Completely covering with sheet steel of at least no. 27 U.S. gauge or with equally fire resistive material as determined by the department. Exposed joints and edges of sheet metal, where used, shall be folded.~~

~~(b) Painting with an approved fire resistive paint.//~~

R 408.8228 **Rescinded.**//Car enclosures, entrances, and doors.

~~Rule 228. (1) Rules 204.1 and 204.7 of the standard shall apply to car enclosures except for rule 204.7a(3).~~

~~(2) Rules 204.4 and 204.5 of the standard shall apply to car entrances protection.~~

~~(3) Section 112 of the standard shall apply to power doors.~~

~~-(4) Rule 110.3a of the standard shall apply to door closers.//~~

R 408.8229 **Rescinded.**//Car and counterweight safeties; governors; anti-creep.

~~Rule 229. (1) Section 205 of the ASME code shall apply to car and counterweight safeties.~~

~~-(2) Section 206 of the ASME code shall apply to governors, except that governors of the type which are entirely dependent upon the friction between the governor rope and governor sheave for establishing the force necessary to operate the safeties are prohibited.~~

~~-(3) Rule 306.3 of the ASME code shall apply to anti-creep for hydraulic elevators installed after June 14, 1957.//~~

R 408.8230 **Rescinded.**//Relief valves.

~~Rule 230. A hydraulic elevator shall be provided with relief valves conforming to the following:~~

~~-(a) The relief valve shall be located between the pump and the check valve and shall be of a type and so installed in a bypass connection that the valve cannot be shut off from the hydraulic system.~~

~~-(b) The relief valve shall be preset to open at a pressure not greater than 125% of the working pressure at the pump.~~

~~-(c) The size of the relief and bypass shall be sufficient to pass the maximum rated capacity of the pump without raising the pressure more than 20% above that at which the valve opens. Two or more relief valves may be used to obtain the required capacity.~~

~~-(d) Relief valves having exposed pressure adjustment, shall have their means of adjustment sealed and tagged after being set to the correct pressure.//~~

R 408.8231 **Rescinded.**//Operating and stopping devices.

~~Rule 231. (1) Operating devices shall be of the enclosed electrical type. Rope or rod operating devices actuated by hand, wheels, levers, or cranks may be retained if this operation is from within the car only and a continuous pressure electrical control button or switch is provided adjacent to the operating station in the car wired in such manner that continuous manual pressure is required to operate the elevator.~~

~~-(2) Section 209 of the ASME code shall apply to cable suspended elevator terminal stopping devices.~~

~~-(3) Section 305 of the ASME code shall apply to hydraulic elevator terminal stopping devices.~~

~~-(4) Rule 210.2e of the ASME code shall apply to emergency stop switches.//~~

R 408.8232 **Rescinded.**//Emergency signal devices.

~~Rule 232. Rule 211.1 of the standard shall apply to emergency signal devices except for rule 211.1a1(b), (c), and (d).//~~

R 408.8233 **Rescinded.**//Phase-reversal and failure protection for cable-suspended elevators.

~~Rule 233. Rule 210.6 of the standard shall apply to phase-reversal and failure protection for cable-suspended elevators.//~~

R 408.8234 **Rescinded.**//~~Rectifying units supplying power to direct current motors.
Rule 234. Rule 210.10 of the standard shall apply to the use of rectifying units to supply power to direct current elevator motors.~~//

R 408.8235 **Rescinded.**//~~Driving machines and brakes.
Rule 235. (1) Belt drive and chain drive machines are prohibited.
(2) Rule 210.8 of the standard shall apply to the application and release of driving machine brakes.~~//

R 408.8236 **Rescinded.**//~~Hoist cables.
Rule 236. Section 212 of the standard shall apply to hoist cables.~~//

R 408.8237 **Rescinded.**//~~Platform guards.
Rule 237. Rule 203.9 of the standard shall apply to guards.~~//

R 408.8238 **Rescinded.**//~~Floatable and movable platforms.
Rule 238. Rule 210.12 of the standard shall apply to floatable and movable platforms.~~//

R 408.8241 **Rescinded.**//~~Enclosures of hoistways.
Rule 241. (1) 100.1a of the standard shall apply to fire-resistive construction.
(2) Exception: If in the judgment of the state or local fire enforcement authorities nonfire-resistive hoistway enclosures are safe, approval for their continued use may be secured from the department. Where a fire-resistive hoistway is not required, the hoistway shall be fully enclosed.~~//

R 408.8242 **Rescinded.**//~~Projections into hoistways.
Rule 242. (1) All ledges, floor beams, sills, saddles, timbers, and other similar projections in front of car openings projecting more than 2 inches from the inside of the general surface of the hoistway enclosure shall be fitted with smooth, beveled guards set directly under the projection. The angle of such bevels or guard plates shall be not less than 60 degrees and preferably 75 degrees from the horizontal.
(2) Windows, recesses, or offsets, except door lintels, in the general surfaces of the hoistway enclosure which are opposite car openings, shall be protected by curtain walls, grating or vertical bars, set flush with the general surface of the hoistway. Except to protect windows, the curtain walls, grating or vertical bars are not required where a car gate on the car opening opposite the recess or offset is equipped with a mechanical lock which prevents opening of the gate except when the car is leveled with a hoistway door on that side.~~//

R 408.8243 **Rescinded.**//~~Access to machine rooms and machinery spaces.
Rule 243. (1) A permanent, safe, and convenient means of access to elevator machine rooms and overhead machinery spaces shall be provided for authorized persons.
(2) Access doors to machine rooms shall be provided with locks and kept closed and locked.
(3) Access to an elevator machine room from the hoistway is prohibited.~~//

R 408.8244 **Rescinded.**//~~Lighting and ventilation of machine rooms.
-Rule 244. Rule 101.5 of the standard shall apply to lighting and ventilation of machine rooms://~~

R 408.8245 **Rescinded.**//~~Storage of materials.
-Rule 245. Rule 101.2 of the ASME code shall apply to the storage of materials://~~

R 408.8246 **Rescinded.**//~~Enclosure of machine rooms.
-Rule 246. Rules 101.1a and 101.1b of the standard shall apply to enclosure of machine rooms://~~

R 408.8247 **Rescinded.**//~~Foreign pipes.
-Rule 247. The inspector shall order the removal, from existing elevator hoistways or machine rooms, of any pipe conveying gases, liquids, or vapors which, if discharged into the hoistway or machine room or ignited, might endanger life://~~

R 408.8248 **Rescinded.**//~~Hoistway entrance protection.
-Rule 248. Hoistway doors or gates protecting the entrances of existing electric or electrohydraulic elevators shall be equipped with approved type hoistway door combination mechanical locks and electric contacts, be not less than 6 feet in height and reject a ball 2 inches in diameter://~~

R 408.8249 **Rescinded.**//~~Emergency keys for unlocking hoistway doors.
-Rule 249. (1) Emergency key and keyways especially designed to prevent easy duplication, that will unlock the hoistway door nearest the bottom terminal landing to permit easy access to the top of the car and the bottom terminal landing to permit access to the pit irrespective of the position of the car, shall be provided for each elevator having a type of operation that operates the elevator from the landing side of the hoistway and the hoistway door interlocks keep the doors in the locked position when the car is not within the landing zone.
-(2) Exception: When access switches are provided://~~

R 408.8250 **Rescinded.**//~~Pits.
-Rule 250. Rule 106.1 of the standard shall apply to pits://~~

R 408.8251 **Rescinded.**//~~Car and counterweight buffers.
-Rule 251. Section 201 of the standard shall apply to car and counterweight buffers://~~

R 408.8252 **Rescinded.**//~~Wire glass hoistway doors and vision panels.
-Rule 252. Present hoistway doors of wire glass may be continued in use if they are covered or replaced by unperforated metal of not less than no. 18 gauge sheet steel or equivalent material so supported and braced as to deflect not over 1 inch when subjected to a force of 100 pounds applied horizontally at any point. As an alternative to covering doors and to reduce the size of single vision panels, members of noncombustible material and substantial construction shall be securely fastened to the hoistway side of doors and located in such a manner as to reject a ball 6 inches in diameter://~~

R 408.8253 **Rescinded.**//~~Door hold open devices.~~

~~–Rule 253. Door hold open devices may be retained on horizontal sliding doors if the hoistway door closes before the elevator leaves the landing zone.//~~

R 408.8254 **Rescinded.**//~~Emergency release buttons.~~

~~–Rule 254. Devices to render the hoistway door interlocks or hoistway or car door or gate electric contacts inoperative are prohibited.//~~

R 408.8255 **Rescinded.**//~~Plugged door locks.~~

~~–Rule 255. The department shall require the relocation of car gate contacts, hoistway door or gate contacts or interlocks where such devices are found tied or blocked so as to render them inoperative.//~~

R 408.8256 **Rescinded.**//~~Power doors.~~

~~–Rule 256. Section 112 of the standard shall apply to power doors.//~~

R 408.8257 **Rescinded.**//~~Astragals.~~

~~–Rule 257. Rule 110.12d(3)(b) of the ASME code shall apply to astragals.//~~

R 408.8258 **Rescinded.**//~~Car enclosures.~~

~~–Rule 258. (1) Rules 204.3 and 204.7 of the standard shall apply to car enclosures.~~

~~–(2) Rule 204.1f of the standard shall apply to tops of car enclosures.//~~

R 408.8259 **Rescinded.**//~~Car entrances protection.~~

~~–Rule 259. (1) Entrances to electric or electrohydraulic freight elevator cars, except the opening immediately adjacent to the operating device, shall be provided with a car gate or door. Car gates or doors shall be provided at all entrances under the following conditions:~~

~~–(a) Elevators having lever, wheel, crank, or cable operating devices.~~

~~–(b) Elevators having automatic or continuous manual pressure operation from the landings.~~

~~–(c) Where the distance between the hoistway side of a landing door opposite such entrance and the hoistway edge of the landing threshold exceeds 4 inches.~~

~~–(2) Car gates or doors shall be at least 6 feet in height and shall reject a ball 2 inches in diameter.~~

~~–(3) Car gates or doors shall be equipped with approved car gate or door electric contacts.//~~

R 408.8260 **Rescinded.**//~~Car and counterweight safeties; governors.~~

~~–Rule 260. (1) Section 205 of the standard shall apply to car and counterweight safeties.~~

~~–(2) Section 206 of the standard shall apply to governors.~~

~~–(3) Governors which are entirely dependent upon the friction between the governor rope and governor sheave for establishing the force necessary to operate the safeties are prohibited.//~~

R 408.8261 **Rescinded.**//~~Driving machines.~~

~~–Rule 261. Driving machines shall be of the direct connected type.//~~

R 408.8262 **Rescinded.**//~~Anti-creep.~~

~~–Rule 262. Rule 306.3 of the ASME code shall apply to a hydraulic elevator installed after June 14, 1957.//~~

R 408.8263 **Rescinded.**//~~Relief valves.~~

~~–Rule 263. A hydraulic elevator shall be provided with relief valves conforming to the following:~~

~~–(a) The relief valve shall be located between the pump and the check valve and shall be of a type and so installed in a bypass connection that the valve cannot be shut off from the hydraulic system.~~

~~–(b) The relief valve shall be preset to open at a pressure not greater than 125% of the working pressure at the pump.~~

~~–(c) The size of the relief and bypass shall be sufficient to pass the maximum rated capacity of the pump without raising the pressure more than 20% above that at which the valve opens. Two or more relief valves may be used to obtain the required capacity.~~

~~–(d) Relief valves having exposed pressure adjustment shall have their means of adjustment tagged and sealed after being set to the correct pressure.//~~

R 408.8264 **Rescinded.**//~~Operating and stopping devices.~~

~~–Rule 264. (1) Operating devices shall be of the enclosed electrical type. Rope or rod operating devices actuated by hand, wheels, levers, or cranks may be retained if the operation is from within the car only and a continuous pressure electrical control button or switch is provided adjacent to the operating station in the car wired in such a manner that continuous manual pressure is required to operate the elevator.~~

~~–(2) Section 209 of the standard shall apply to terminal stopping devices.//~~

R 408.8265 **Rescinded.**//~~Rectifying units supplying power to direct current motors.~~

~~–Rule 265. Rule 210.10 of the standard shall apply to use of rectifying units to supply power to direct current motors.//~~

R 408.8266 **Rescinded.**//~~Emergency devices.~~

~~–Rule 266. (1) Rule 210.2e of the standard shall apply to stop switches.~~

~~–(2) Rule 211.1 of the standard shall apply to emergency signals except for rule 211.1a1(b), (c), and (d).//~~

R 408.8267 **Rescinded.**//~~Phase reversal and failure relay.~~

~~–Rule 267. Rule 210.6 of the standard shall apply to phase reversal and failure relay.//~~

R 408.8268 **Rescinded.**//~~Electric brakes~~

~~–Rule 268. Rule 208.8 of the standard shall apply to electric brakes.//~~

R 408.8269 **Rescinded.**//~~Platform guards.~~

~~–Rule 269. Rule 203.9 of the standard shall apply to platform guards.//~~

R 408.8270 **Rescinded.**//~~Slack rope switches.~~

~~–Rule 270. Rule 210.2a of the ASME code shall apply to slack rope switches.//~~

R 408.8271 **Rescinded.**//~~Hoist cables.~~

~~–Rule 271. Section 212 of the standard shall apply to hoist cables.//~~

R 408.8281 **Rescinded.**//~~Hoistways and hoistway enclosures.~~

~~–Rule 281. (1) Rule 100.1a of the standard shall apply to fire resistive construction.~~

~~–(2) Exception: If in the judgment of the state or local fire enforcement authorities nonfire resistive hoistway enclosures and landing door assemblies are safe, approval for their continued use may be secured from the department.~~

~~–(3) Nonfire resistive enclosures shall be a minimum of 6 feet in height from each floor or landing and above the treads or adjacent stairways. Enclosure shall be so supported and braced as to deflect not over 1 inch when subjected to a force of 100 pounds and if of openwork construction shall be of noncombustible material and reject a ball 2 inches in diameter.//~~

R 408.8282 **Rescinded.**//~~Machinery spaces.~~

~~–Rule 282. (1) A permanent, safe, and convenient means of access to machine rooms and overhead machinery spaces shall be provided for authorized persons. Where the machine is located over the hoistway, a floor or working platform shall be provided of a strength and type of construction approved by the department.~~

~~–(2) Access to elevator machinery spaces from the hoistway is prohibited.~~

~~–(3) Enclosure construction of machinery spaces located outside the hoistway shall be approved by the department.//~~

R 408.8283 **Rescinded.**//~~Hoisting machine supports.~~

~~–Rule 283. Overhead machinery shall be supported from the underside, as approved by the department. Suspension by hooks, cables, chains, or similar devices shall be prohibited.//~~

R 408.8284 **Rescinded.**//~~Hoistway entrance protection.~~

~~–Rule 284. Entrances shall be provided with hoistway landing doors with structural requirements not less than those required for the hoistway enclosure. Hoistway landing doors shall be provided with approved mechanical locks and electric contacts.//~~

R 408.8285 **Rescinded.**//~~Plugged door locks.~~

~~–Rule 285. The department shall require the relocation of car gate contacts, hoistway door, or gate contacts or interlocks where such devices are found tied or blocked so as to render them inoperative.//~~

R 408.8286 **Rescinded.**//~~Guide rails.~~

~~–Rule 286. (1) Cars and counterweights shall be provided with guide rails of steel or straight grained seasoned wood free from knots, shakes, dry rot, or other structural imperfections.~~

~~-(2) Guide rails shall be securely fastened and shall not deflect more than 1/8 inch. Guide rails shall withstand the application of the safety when stopping the car at rated speed with rated load.//~~

R 408.8287 **Rescinded.**//~~Car frames and enclosures.~~

~~-Rule 287. (1) Car frames shall be of a type of construction approved by the department.~~

~~-(2) Cars shall be fully enclosed to a height of at least 6 feet on the sides not used for an entrance. The car cage or platform shall have headroom of not less than 6 feet 6 inches.~~

~~-(3) Car enclosures shall be illuminated.~~

~~-(4) Car gates or doors shall be provided and equipped with approved car gate or door electric contacts where the hoistway is not enclosed throughout its height.//~~

R 408.8288 **Rescinded.**//~~Car safety devices.~~

~~-Rule 288. (1) Car safety devices shall be provided.~~

~~-(2) Section 205 of the ASME code shall apply to car safety devices.//~~

R 408.8289 **Rescinded.**//~~Capacity and speed.~~

~~-Rule 289. (1) The rated load shall be not more than 1/2 of the rated capacity of the hoisting machine.~~

~~-(2) The area of the platform shall be in proportion to the rated capacity of the machine as approved by the department.//~~

R 408.8290 **Rescinded.**//~~Driving machines and sheaves.~~

~~-Rule 290. (1) A driving machine shall be of the drum, traction, or direct connected plunger hydraulic type.~~

~~-(2) An elevator having a winding drum machine shall be provided with a slack rope device equipped with a slack rope switch of the enclosed manually reset type which shall cause the electric power to be removed from the elevator driving machine motor and brake if the hoisting ropes become slack.~~

~~-(3) Driving and deflecting sheaves shall be of metal. The diameter of sheaves shall not be less than 30 times the diameter of the hoisting cables. Where 8 x 19 steel cables are used this multiple may be reduced to 21.//~~

R 408.8291 **Rescinded.**//~~Brakes.~~

~~-Rule 291. (1) An electric hoisting machine shall be provided with electrically released spring applied brakes.~~

~~-(2) Manually operated brakes are prohibited.//~~

R 408.8292 **Rescinded.**//~~Hydraulics.~~

~~-Rule 292. Plunger stops and relief valves are not required.//~~

R 408.8293 **Rescinded.**//~~Operating and stopping devices.~~

~~-Rule 293. (1) Operating devices shall be of the enclosed electrical type and shall be located on the landing side of the hoistway only.~~

~~-(2) Upper and lower normal terminal stopping devices shall be provided and arranged to slow down and stop the car automatically, at or near the top and bottom terminal landings, with any load up to and including rated load in the car and from any speed attained in normal operation. Such devices shall function independently of the operation of the operating device. The device shall be so designed and installed that it will continue to function until the car reaches its extreme limits of travel.//~~

R 408.8294 **Rescinded.**//~~Suspension means:~~

~~Rule 294. (1) Suspension means shall be as follows:~~

~~-(a) The minimum number of hoisting cables used shall be 2.~~

~~-(b) Where a car counterweight is used, the number of counterweight cables used shall be not less than 2.~~

~~-(c) The factors of safety shall not be less than shown in rule 212.3 of the standard.~~

~~-(d) The car and counterweight ends of car and counterweight wire cables, or the stationary hitch ends where multiple cabling is used, shall be fastened so that all portions of the cable except the portion inside the cable sockets are readily visible.~~

~~-(2) Fastenings shall be:~~

~~-(a) By individual tapered babbitted cable sockets or nondeforming cable clamps with cable thimbles. U bolt type cable clips or clamps are prohibited.~~

~~-(b) The car ends, or the car or counterweight dead ends where multiple cabling is used, of all suspension wire cables of traction type elevators shall be provided with rods of a design which will permit individual adjustment of the cable length.//~~

R 408.8295 **Rescinded.**//~~Access to pits:~~

~~Rule 295. (1) Safe and convenient access shall be provided to all pits, and shall conform to the following:~~

~~-(a) Access may be by means of the lowest hoistway door or by means of a separate pit access door.~~

~~-(b) Access to pits extending more than 4 feet below the sill of the pit access door shall be provided by means of fixed vertical ladders of incombustible material, located within reach of the access door. The ladder shall extend not less than 30 inches above the sill of the access door, or hand grips shall be provided to the same height.~~

~~-(c) Access to pits of elevators in multiple hoistways shall not be by means of a single hoistway door and ladder.~~

~~-(d) Pits shall be accessible only to authorized persons.~~

~~-(2) Where a separate pit access door is provided, it shall be self-closing and provided with a spring type lock arranged to permit the door to be opened from inside the pit without a key. Such doors shall be kept locked.//~~

R 408.8296 **Rescinded.**//~~Illumination of pits:~~

~~Rule 296. A permanent lighting fixture shall be provided in a pit which shall provide an illumination of not less than 5 foot candles at the pit floor. A light switch shall be provided and so located as to be accessible from the pit access door.//~~

R 408.8301 **Rescinded.**//~~Hoistways and hoistway enclosures:~~

~~Rule 301. (1) Rule 100.1a of the standard shall apply to fire resistive construction.~~

~~-(2) Exception: If in the judgment of the state or local fire enforcement authorities nonfire-resistive hoistway enclosures and landing door assemblies are safe, approval for their continued use may be secured from the department.~~

~~-(3) Nonfire-resistive enclosures shall be a minimum of 6 feet in height from each floor or landing and above the treads of adjacent stairways. Enclosures shall be so supported and braced as to deflect not over 1 inch when subjected to a force of 100 pounds and if of openwork construction shall be of noncombustible material and reject a ball 2 inches in diameter.//~~

R 408.8302 **Rescinded.**//Machinery spaces.

~~-Rule 302. (1) A permanent, safe, and convenient means of access to machine rooms and overhead machinery spaces shall be provided for authorized persons. Where the machine is located over the hoistway, a floor or working platform shall be provided of a strength and type of construction approved by the department.~~

~~-(2) Access to elevator machinery space from the hoistway is prohibited.~~

~~-(3) Enclosure construction of machinery spaces located outside the hoistway shall be approved by the department.//~~

R 408.8303 **Rescinded.**//Hoisting machine supports.

~~-Rule 303. Overhead machinery shall be fastened as approved by the department. Open hooks shall be prohibited.//~~

R 408.8304 **Rescinded.**//Hoistway entrance protection.

~~-Rule 304. (1) Entrances shall be provided with hoistway landing doors with structural requirements not less than those required for the hoistway enclosure.~~

~~-(2) Hoistway landing doors shall be provided with approved mechanical locks and electric contacts.//~~

R 408.8305 **Rescinded.**//Plugged door locks.

~~-Rule 305. The department shall require the relocation of car gate contacts, hoistway door or gate contacts or interlocks where such devices are found tied or blocked so as to render them inoperative.//~~

R 408.8306 **Rescinded.**//Guide rails.

~~-Rule 306. (1) Cars and counterweights shall be provided with guide rails of steel or straight grained seasoned wood free from knots, shakes, dry rot, or other structural imperfections.~~

~~-(2) Guide rails shall be securely fastened and shall not deflect more than 1/8 inch.//~~

R 408.8307 **Rescinded.**//Car frames and enclosures.

~~-Rule 307. (1) Car frames shall be of a type of construction approved by the department.~~

~~-(2) Car shall be enclosed to a height sufficient to contain the load.~~

~~-(3) Car enclosures shall be illuminated.~~

~~-(4) Car gates and doors shall be provided and equipped with approved car gate or door electric contacts where the hoistway is not enclosed throughout its height.//~~

R 408.8308 **Rescinded.**//Capacity and speed.

- ~~–Rule 308. (1) The rated load shall be not more than 1/2 of the rated capacity of the hoisting machine.~~
- ~~–(2) The area of the platform shall be in proportion to the rated capacity of the machine as approved by the department.~~
- ~~–(3) The maximum speed shall not exceed 50 feet per minute.//~~

R 408.8309 **Rescinded.**//Driving machines and sheaves.

- ~~–Rule 309. (1) A driving machine shall be of the drum, traction or hydraulic type.~~
- ~~–(2) Driving and deflecting sheaves shall be of metal. The diameter of sheaves shall not be less than 30 times the diameter of the hoisting cables. Where 8 x 19 steel cables are used this multiple may be reduced to 21.//~~

R 408.8310 **Rescinded.**//Brakes.

- ~~–Rule 310. (1) An electric hoisting machine shall be provided with electrically released spring applied brakes. Approved existing mechanical brakes may be retained.~~
- ~~–(2) Manually operated brakes are prohibited.//~~

R 408.8311 **Rescinded.**//Hydraulics.

- ~~–Rule 311. Plunger stops and relief valves are not required.//~~

R 408.8312 **Rescinded.**//Operating and stopping devices.

- ~~–Rule 312. (1) Operating devices shall be of the enclosed electrical type and shall be located on the landing side of the hoistway only.~~
- ~~–(2) Upper and lower normal terminal stopping devices shall be provided and arranged to slow down and stop the car automatically, at or near the top and bottom terminal landings, with any load up to and including rated load in the car and from any speed attained in normal operation. Such devices shall function independently of the operation of the operating device. The device shall be so designed and installed that it will continue to function until the car reaches the extreme limits of travel.//~~

R 408.8313 **Rescinded.**//Suspension means.

- ~~–Rule 313. (1) Suspension means on installations subsequent to June 14, 1957, shall be as follows:~~
- ~~–(a) The minimum number of hoisting cables used shall be 2.~~
- ~~–(b) Where a car counterweight is used, the number of counterweight cables used shall be not less than 2.~~
- ~~–(c) The factors of safety shall not be less than shown in rule 212.3 of the standard.~~
- ~~–(d) The car and counterweight ends of car and counterweight wire cables, or the stationary hitch ends where multiple cabling is used, shall be fastened in such a manner that all portions of the cable except the portion inside the cable sockets shall be readily visible.~~
- ~~–(2) Fastenings shall be:~~
- ~~–(a) By individual tapered babbitted cable sockets or nondeforming cable clamps with cable thimbles. U bolt type cable clips or clamps are prohibited.~~

~~-(b) The car ends, or the car or counterweight dead ends where multiple cabling is used, of all suspension wire cables of traction type elevators shall be provided with rods of a design which will permit individual adjustment of the cable length.~~

~~-(3) Chains as a means of suspension may be retained on installations made prior to June 14, 1957.//~~

R 408.8321 **Rescinded.**//~~Nonfire resistive enclosures.~~

~~-Rule 321. Hoistway enclosures of wood or metal shall be provided on all landings accessible to the public. Enclosures may be of openwork construction and shall be of at least no. 13 gauge wire that rejects a 2-inch ball. Enclosures shall be a minimum of 6 feet in height from each floor or landing and above the treads of adjacent stairways.//~~

R 408.8322 **Rescinded.**//~~Sheaves, supports, and cables.~~

~~-Rule 322. (1) Sheaves shall be securely fastened. Supports for driving sheaves shall be sufficient to sustain the weight of the car, weight of the counterweight and rated load.~~

~~-(2) The hoisting cables shall be of a length that will allow the counterweight to land before the car crosshead is within 12 inches from striking the overhead sheave supports. Sheaves shall be of the traction type.//~~

R 408.8323 **Rescinded.**//~~Car and counterweight top and bottom clearances.~~

~~-Rule 323. (1) Top car and counterweight clearances shall be a minimum of 12 inches.~~

~~-(2) Car and counterweight bottom runby is not required.//~~

R 408.8324 **Rescinded.**//~~Landing openings and hoistway doors.~~

~~-Rule 324. (1) Where enclosures are required, landing doors shall be provided of a strength equal to or stronger than the requirements for the enclosures.~~

~~-(2) Hoistway doors shall be so arranged that they may be opened by authorized persons by hand from the hoistway side when the car is at the landing.//~~

R 408.8325 **Rescinded.**//~~Cars.~~

~~-Rule 325. (1) Approved car buffers shall be provided.~~

~~-(2) Car enclosures are not required.~~

~~-(3) Car safeties shall be of the type operated as a result of the breakage of the hoist cables and shall engage both rails simultaneously. This type of safety shall be tested by obtaining the necessary slack rope to cause it to function with rated load on the car. This test shall be performed every 12 months or every 6 months if exposed to the weather.//~~

R 408.8326 **Rescinded.**//~~Brakes.~~

~~-Rule 326. A foot brake operated by a spring designed to apply automatically when the operator's foot is removed from the brake pedal shall be provided. The brakes shall engage both guide rails.//~~

R 408.8327 **Rescinded.**//~~Hoisting cables.~~

~~-Rule 327. (1) Only iron (low carbon steel) or steel wire cables with fibre cores, having the commercial classification "elevator wire cable," shall be used for suspension of~~

~~elevator cars and suspension of counterweights. The wire material for cables shall be manufactured by the open hearth or electric furnace process or their equivalent.~~

~~-(2) Suspension means shall be not less than 2 3/8 inch diameter cables.~~

~~-(3) Exception: A single cable of approved material may be retained until the crosshead is replaced.~~

~~-(4) Cables shall be fastened in an approved manner.//~~

R 408.8328 **Rescinded.**//Signs.

~~Rule 328. Signs reading "EMPLOYEES ONLY" with letters no less than 2 inches in height, shall be provided at all entrances.//~~

R 408.8329 **Rescinded.**//Counterweight enclosures.

~~Rule 329. A counterweight located outside the hoistway shall be enclosed throughout its travel. If located inside the hoistway, it shall be guided. A fully enclosed counterweight shall be provided with a removable panel at the bottom landing to allow for maintenance and inspection of the counterweight and hitch.//~~

R 408.8341 **Rescinded.**//Rules applicable.

~~Rule 341. An existing incline lift shall meet the requirements of these rules for a new incline lift.//~~

R 408.8361 **Rescinded.**//One-man electric powered.

~~Rule 361. An existing 1-man electric powered elevator shall meet the requirements of these rules for a new 1-man electric powered elevator.//~~

R 408.8362 **Rescinded.**//Escalators.

~~Rule 362. Section 800 of the standard shall apply to escalators.//~~

R 408.8363 **Rescinded.**//Belt manlifts.

~~Rule 363. An existing belt manlift shall meet the requirements of these rules for a new belt manlift.//~~

R 408.8364 **Rescinded.**//Sidewalk elevators.

~~Rule 364. (1) Rules 400.2, 401.2, 401.3, 401.4, 401.4b, 401.5, 401.6, and 401.10 of the ASME code shall apply to sidewalk elevators.~~

~~-(2) No one shall be permitted to ride a sidewalk elevator.~~

~~-(3) A sidewalk elevator shall be operated in both directions by a switch on the sidewalk or other exterior area only. Operation shall be with a key operated continuous pressure type switch with key removable only when the switch is in the "off" position.//~~

R 408.8365 **Rescinded.**//Dumbwaiters.

~~Rule 365. Section 700.0 of the standard shall apply to dumbwaiters as the department deems necessary for their safe operation.//~~

//PART III. NEW INSTALLATIONS//

R 408.8401 **Rescinded.**//Applicability of rules and manual.

~~—Rule 401. The following sections outline the minimum requirements, regular maintenance and approved safety practices for elevators as defined in section 3 of the act. All other approved existing features or components of the elevator shall be in compliance with these rules and shall be maintained as described in the American standard inspectors' manual ASME/ANSI A17.2-1988 and ASME/ANSI A17.2a-1989 addenda, published by the American society of mechanical engineers, a copy of which is on file in the Lansing office of the department of consumer and industry services and which is available for public inspection.~~//

R 408.8403 **Rescinded.**//Applicability of sections of the ASME code.

~~—Rule 403. The following sections of the ASME code shall apply to inclined lifts, 1-man hand-powered elevators, 1-man electric powered elevators, workmen's elevators, and belt manlifts:~~

- ~~—(a) Electric Wiring section 102.~~
- ~~—(b) Hydraulic Piping and Fittings section 300.~~
- ~~—(c) Safety Tests section 1000.~~
- ~~—(d) Maintenance and Repairs sections 1000 and 1001.~~
- ~~—(e) Alterations sections 1100, 1101, and 1102.~~//

R 408.8411 **Rescinded.**//Passenger elevators.

~~—Rule 411. Rules promulgated by the board and the ASME code shall apply to passenger elevators.~~//

R 408.8415 **Rescinded.**//Freight elevators.

~~—Rule 415. Rules promulgated by the board and the ASME code shall apply to freight elevators.~~//

R 408.8421 **Rescinded.**//Applicability.

~~—Rule 421. This portion of the rules applies to hand-powered, 1-man elevators used in grain mills, grain storage buildings, signal towers, chemical works, and other buildings where it is necessary to have a 1-man elevator and where conformity to the requirements for passenger elevators would impose difficulty or hardship not warranted because of their limited use. One-man elevators shall not be accessible to the general public and shall be limited to use by the employees only.~~//

R 408.8422 **Rescinded.**//Hoistways and hoistway enclosures.

~~—Rule 422. Rule 100.1 of the standard shall apply to hoistways and hoistway enclosures.~~//

R 408.8423 **Rescinded.**//Sheave supports.

~~—Rule 423. Sheaves shall be securely fastened and supported with a factor of safety as follows:~~

- ~~—(a) For steel 5~~
- ~~—(b) For timber and reinforcing concrete 6~~//

R 408.8424 **Rescinded.**//Pits and spaces below hoistways.

~~Rule 424. (1) A pit of at least 12 inches in depth shall be provided below the lowest landing.~~

~~(2) Exception: If a hardship is created because of construction of the building, the department may approve the landing opening 12 inches above the building floor level, if a permanent ramp or steps from the building floor level to the lowest hoistway landing entrance is provided.~~

~~(3) Section 109 of the standard shall apply to protection of spaces below hoistways://~~

R 408.8425 **Rescinded.**//Car and counterweight clearances.

~~Rule 425. (1) When a car platform is level with the lowest landing, the car buffer striker plates shall not be in contact with the buffers.~~

~~(2) When the car platform is level with the top landing there shall be at least 24 inches between the top of the car crosshead and the nearest obstruction.~~

~~(3) When the counterweights are resting on their buffers, there shall be at least 18 inches between the top of the car crosshead and the nearest obstruction.~~

~~(4) When the car is resting on its buffers, there shall be at least 6 inches clearance between the top of the counterweight and the nearest obstruction.~~

~~(5) Section 108 of the standard shall apply to horizontal car and counterweight clearances://~~

R 408.8426 **Rescinded.**//Landing openings and thresholds.

~~Rule 426. (1) Section 110 of the standard shall apply to the protection of landing openings.~~

~~(2) A landing threshold shall be constructed and maintained to render it skid resistant. Illumination on the landing threshold shall be not less than 1 footcandle://~~

R 408.8427 **Rescinded.**//Hoistway door or gate locking and closing devices.

~~Rule 427. Hoistway doors and gates shall be self closing and shall be provided with spring type latches to hold them in the closed position. Latches shall be released only by the car when the car is in the landing zone://~~

R 408.8428 **Rescinded.**//Car and counterweight guide rails, supports, fastenings, and buffers.

~~Rule 428. (1) Cars and counterweights shall be provided with guide rails of steel or straight grained seasoned wood free from knots, shakes, dry rot, or other structural imperfections.~~

~~(2) Guide rails shall be securely fastened with through bolts or clips of strength, design and spacing as follows:~~

~~(a) The guide rails and their fastenings shall not deflect more than 1/4 inch.~~

~~(b) The guide rails and their fastenings shall withstand the application of the safety, when stopping the car with rated load or when stopping the counterweight.~~

~~(c) Car and counterweight guide rails shall rest on suitable supports and extend at the top of the hoistway to prevent the guide shoes from running off the guide rails in case the car or counterweight travels beyond the terminal landings.~~

~~(3) Section 201 of the standard shall apply to car and counterweight buffers://~~

R 408.8429 **Rescinded.**//Counterweights.

~~—Rule 429. Adequate counterweights shall be provided to maintain proper weight relationship between the counterweight and the car to operate the car efficiently. Sections of counterweights shall be carried in frames or secured between rails to prevent dislodgment throughout the length of travel.//~~

R 408.8430 **Rescinded.**//Car frames and platforms.

~~—Rule 430. A car frame and platform shall be of metal or sound, seasoned wood. Frame members shall be securely bolted and braced. With a uniformly distributed rated load the factor of safety shall not be less than 4 for metal and 6 for wood.//~~

R 408.8431 **Rescinded.**//Car enclosures.

~~—Rule 431. A car shall be enclosed on the sides not used for entrance. The car enclosure shall have headroom of not less than 6 feet 6 inches. The deflection of the enclosure shall be not more than 1/4 inch when subjected to a force of 75 pounds applied perpendicularly to the car enclosure at any point. The enclosure shall be secured to the car platform or frame in such a manner that it cannot work loose or become displaced in normal operation.//~~

R 408.8432 **Rescinded.**//Car entrance protection.

~~—Rule 432. A car entrance shall be protected with a door or gate, and when in a closed position shall guard the full width of the car opening. The door or gate shall extend from a point not more than 1 inch above the car floor to a point at least 6 feet above the car floor, and when in a closed position shall reject a ball 3 inches in diameter.//~~

R 408.8433 **Rescinded.**//Emergency exits.

~~—Rule 433. A car shall be provided with an emergency exit providing egress from the car to the emergency ladder from any location in the hoistway.//~~

R 408.8434 **Rescinded.**//Emergency ladders.

~~—Rule 434. An emergency exit metal ladder shall:~~

- ~~—(a) Be permanently installed in the hoistway continuous from the pit to the machine room. To protect the individual from the descending car, the ladder shall be designed and installed in an approved location.~~
- ~~—(b) Be accessible from the car enclosure.~~
- ~~—(c) Have rails not less than 2 inches by 1/2 inch and at least 16 inches apart.~~
- ~~—(d) Have rails supported at intervals of not less than 10 feet.~~
- ~~—(e) Have rails extending not less than 45 inches above machine room or roof line.~~
- ~~—(f) Have rungs securely fastened in position.~~
- ~~—(g) Have rungs with a diameter of not less than 7/8 inch and 12 inches apart.~~
- ~~—(h) Have a top rung within 6 inches of the level of the machine room or roof line.//~~

R 408.8435 **Rescinded.**//Car safety devices and governors.

~~Rule 435. (1) The car safety device shall be operated as a result of the breakage of the hoist cables or by a speed governor and be capable of stopping and sustaining car with the rated load.~~

~~(2) The applicable sections of rule 205.8a of the standard shall apply to governors.~~

~~(3) Rule 206.5 of the standard shall apply to governor cables.~~

~~(4) The governor shall be located where it cannot be struck by the car or counterweight in case of over travel.~~

~~(5) Upon breakage of a hoist cable, broken rope safety devices shall operate without delay and shall engage both rails simultaneously.//~~

R 408.8436 **Rescinded.**//Capacity.

~~Rule 436. The rated load shall not exceed 300 pounds.//~~

R 408.8437 **Rescinded.**//Platform areas.

~~Rule 437. The inside net platform area shall not exceed 5 square feet.//~~

R 408.8438 **Rescinded.**//Driving sheaves.

~~Rule 438. (1) The driving sheave shall be of the traction type. The cable grooves shall be machined.~~

~~(2) The driving sheave and deflecting sheave shall be of cast iron or steel.~~

~~(3) The driving sheave and deflecting sheave shall be of a diameter of not less than 30 times the diameter of the hoisting cable, except where 8 by 19 cables are used, the diameter of the sheaves may be reduced to 21 times the diameter of the cable.~~

~~(4) Rule 208.3 of the standard shall apply to the factor of safety.~~

~~(5) Set screw fastenings shall not be used in lieu of keys or pins if the connection is subject to torque or tension.~~

~~(6) A friction gearing or clutch mechanism is prohibited.~~

~~(7) A worm gearing having cast iron teeth is prohibited.//~~

R 408.8439 **Rescinded.**//Brakes.

~~Rule 439. (1) A foot brake shall be provided operated by a spring designed to apply automatically when the operator's foot is removed from the brake pedal.~~

~~(2) The brakes shall engage both guide rails.//~~

R 408.8440 **Rescinded.**//Hoisting cables.

~~Rule 440. (1) Only iron (low carbon steel) or steel wire cables which have fibre cores and which have the commercial classification of "elevator wire cable" shall be used for the suspension of elevator cars and counterweights. The wire material for cables shall be manufactured by the open hearth or electric furnace process or equivalent.~~

~~(2) Suspension means shall be not less than 2 iron or steel wire 3/8 inch diameter cables.~~

~~(3) Section 512 of the ASME code shall apply to the factor of safety, arc of contact, and method of fastening.//~~

R 408.8441 **Rescinded.**//Data plates and signs.

~~Rule 441. (1) A permanent metal plate shall be placed upon the landing side of the crosshead of an elevator and bear the following information:~~

- ~~-(a) The total weight of the car, including the safeties.~~
- ~~-(b) The cable data required by rule 212.2a of the standard.~~

~~(2) A permanent metal sign reading "EMPLOYEES ONLY," with block letters not less than 2 inches in height shall be displayed at the ground floor landing.//~~

R 408.8451 **Rescinded.**//Applicability.

~~Rule 451. This portion of the rules applies to electric powered elevators used in grain mills, grain storage buildings, signal towers, chemical works and other buildings where it is necessary to have a 1-man elevator and where conformity to the requirements for passenger elevators would impose difficulty or hardship not warranted because of their limited use. One man elevators shall not be accessible to the general public and shall be limited to use by employees only.//~~

R 408.8452 **Rescinded.**//Hoistways and hoistway enclosures.

~~Rule 452. Section 100 of the standard shall apply to hoistways and hoistway enclosures.//~~

R 408.8453 **Rescinded.**//Counterweights.

~~Rule 453. (1) Counterweights shall be provided and constructed as follows:~~

- ~~-(a) Counterweights shall compensate the total weight of the car, plus 40% of rated capacity.~~
- ~~-(b) Sections of counterweights, whether carried in frames or not, shall be secured by at least 1 tie rod passing through the holes in the sections. The tie rods shall have locknuts secured by cotter pins at each end.~~

~~(2) Counterweights shall be located in the hoistway of the elevator which they serve.~~

~~(3) Counterweight pit guards shall extend from a point 12 inches above the pit floor to a point not less than 7 feet not more than 8 feet above such floor, and shall be fastened to a metal reinforced frame equal in strength and rigidity to no. 14 U.S. gauge sheet steel.//~~

R 408.8454 **Rescinded.**//Guarding of exposed equipment.

~~Rule 454. Section 104 of the standard shall apply to guarding of exposed equipment.//~~

R 408.8455 **Rescinded.**//Machinery and sheave beams, supports, and foundations.

~~Rule 455. Section 105 of the standard shall apply to machinery and sheave beams, supports, and foundations.//~~

R 408.8456 **Rescinded.**//Pits and spaces below hoistways.

~~Rule 456. (1) A pit of at least 12 inches in depth shall be provided below the lowest landing.~~

~~(2) Section 109 of the standard shall apply to spaces below hoistways.~~

~~(3) Exception: If a hardship is created because of construction of the building, the department may approve the landing opening 12 inches above the building floor level if a permanent ramp or steps from the building floor level to the lowest hoistway landing entrance is provided.//~~

R 408.8457 **Rescinded.**//~~Car and counterweight clearances.~~

~~–Rule 457. (1) When the car platform is level with the lowest landing, the car buffer striker plates shall not be in contact with the buffers.~~

~~–(2) When the car platform is level with the top landing there shall be at least 24 inches between the top of the car crosshead and the nearest obstruction.~~

~~–(3) When the counterweights are resting on their buffers there shall be at least 18 inches between the top of the car crosshead and the nearest obstruction.~~

~~–(4) When the car is resting on its buffers there shall be at least 6 inches clearance between the top of the counterweights and the nearest obstruction.~~

~~–(5) Section 108 of the standard shall apply to horizontal car and counterweight clearances.//~~

R 408.8458 **Rescinded.**//~~Landing openings and thresholds.~~

~~–Rule 458. (1) Rule 110.1 of the standard shall apply to protection of landing openings of fire resistive hoistways.~~

~~–(2) Rule 100.1c of the standard shall apply to protection of landing openings of nonfire-resistive hoistways.~~

~~–(3) A landing threshold shall be skid resistant.~~

~~–(4) The illumination on a landing threshold shall be not less than 1 footcandle.//~~

R 408.8459 **Rescinded.**//~~Locking devices.~~

~~–Rule 459. Rules 111.4b, 111.4c, and 111.4d of the standard shall apply to locking devices.//~~

R 408.8460 **Rescinded.**//~~Power operation of doors and gates.~~

~~–Rule 460. Section 112 of the standard shall apply to power operation of hoistway doors and car doors and gates.//~~

R 408.8461 **Rescinded.**//~~Car and counterweight guide rails, guard supports, and fastenings.~~

~~–Rule 461. (1) Cars and counterweights shall be provided with guide rails of steel or straight grained seasoned wood free from knots, shakes, dry rot, or other structural imperfections.~~

~~–(2) Guide rails shall be securely fastened with through bolts or clips of strength, design and spacing as follows:~~

~~–(a) Guide rails and their fastenings shall not deflect more than 1/4 inch under normal operation.~~

~~–(b) Guide rails and their fastenings shall withstand the application of the safety when stopping the car with rated load or when stopping the counterweight.~~

~~–(c) Guide rails shall rest on suitable supports and extend at the top of the hoistway to prevent the guide shoes from running off the guide rails in case the car or counterweight travels beyond the terminal landings.//~~

R 408.8462 **Rescinded.**//~~Car and counterweight buffers.~~

~~–Rule 462. Section 201 of the standard shall apply to car and counterweight buffers.//~~

R 408.8463 **Rescinded.**//Car frames, platforms, and enclosures.

~~—Rule 463. (1) A car frame and platform shall be of metal or sound, seasoned wood. Frame members shall be securely bolted and braced. With a uniformly distributed rated load the factor of safety shall not be less than 4 for metal and 6 for wood.~~

~~—(2) A car shall be enclosed on the sides not used for entrance. The car enclosure shall have headroom of not less than 6 feet 6 inches. The deflection of the enclosure shall be not more than 1/4 inch when subjected to a force of 75 pounds applied perpendicularly to the car enclosure at any point. The enclosure shall be secured to the car platform or frame in such a manner that it cannot work loose or become displaced in normal operation.~~//

R 408.8464 **Rescinded.**//Car entrance protection.

~~—Rule 464. A car entrance shall be protected with a door or gate that, when in a closed position, shall guard the full width of the car opening. The door or gate shall extend from a point not more than 1 inch above the car floor to a point at least 6 feet above the car floor, and when in a closed position shall reject a ball 3 inches in diameter.~~//

R 408.8465 **Rescinded.**//Illumination.

~~—Rule 465. An electric light shall be provided with a switch located adjacent to the control panel. Lamps shall be equipped with substantial guards to prevent breakage.~~//

R 408.8466 **Rescinded.**//Emergency signals and exits.

~~—Rule 466. (1) An elevator shall be provided with an electric signal bell clearly audible outside the hoistway, and operated from inside of the car.~~

~~—(2) A car shall be provided with an emergency exit providing egress from the car to the emergency ladder from any location in the hoistway.~~//

R 408.8467 **Rescinded.**//Emergency ladders.

~~—Rule 467. An emergency exit metal ladder shall:~~

~~—(a) Be permanently installed in the hoistway continuous from the pit to the machine room. To protect the individual from the descending car, the ladder shall be designed and installed in an approved location.~~

~~—(b) Be accessible from the car enclosure.~~

~~—(c) Have rails not less than 2 inches by 1/2 inch and at least 16 inches apart.~~

~~—(d) Have rails supported at intervals of not less than 10 feet.~~

~~—(e) Have rails extending not less than 45 inches above machine room or roof line.~~

~~—(f) Have rungs securely fastened in position.~~

~~—(g) Have rungs with a diameter of not less than 7/8 inch and 12 inches apart.~~

~~—(h) Have a top rung within 6 inches of the level of the machine room or roof line.~~//

R 408.8468 **Rescinded.**//Car safety devices and governors.

~~—Rule 468. Sections 205 and 206 of the standard shall apply to car safety devices and governors.~~//

R 408.8469 **Rescinded.**//Capacity.

~~Rule 469. The rated load shall not exceed 300 pounds.//~~

R 408.8470 **Rescinded.**//Platform areas.

~~Rule 470. The inside net platform area shall not exceed 5 square feet.//~~

R 408.8471 **Rescinded.**//Speed.

~~Rule 471. The rated speed shall not exceed 100 feet per minute.//~~

R 408.8472 **Rescinded.**//Driving machines.

~~Rule 472. (1) A driving machine shall be of the traction type. The cable grooves shall be machined.~~

~~(2) Rule 208.3 of the standard shall apply to the factor of safety.~~

~~(3) Set screw fastenings shall not be used in lieu of keys or pins if the connection is subject to torque or tension.~~

~~(4) The machine shall be designed for manual operation by means of a crank in the event of power failure. A suitable crank shall be provided near the machine.~~

~~(5) A friction gearing or clutch mechanism is prohibited.~~

~~(6) A worm gearing having cast iron teeth is prohibited.//~~

R 408.8473 **Rescinded.**//Sheaves.

~~Rule 473. (1) The driving sheave and deflecting sheaves shall be of cast iron or steel.~~

~~(2) The driving sheave and deflecting sheaves shall be of a diameter of not less than 30 times the diameter of the hoisting cable.~~

~~(3) Exception: Where 8 x 19 steel cables are used, the diameter of the sheaves may be reduced to 21 times the diameter of the cable.~~

~~(4) Rule 208.3 of the standard shall apply to the factor of safety.~~

~~(5) Set screw fastenings shall not be used in lieu of keys or pins if the connection is subject to torque or tension.//~~

R 408.8474 **Rescinded.**//Hoisting machine brakes.

~~Rule 474. (1) Machines shall be equipped with electrically released spring applied brakes.~~

~~(2) A single ground or short circuit, a counter voltage, or a motor field discharge shall not prevent the brake magnet from allowing the brake to set when the operating device is placed in the stop position.//~~

R 408.8475 **Rescinded.**//Terminal stopping devices.

~~Rule 475. Section 209 of the standard shall apply to terminal stopping devices.//~~

R 408.8476 **Rescinded.**//Operation, operation devices, and control equipment.

~~Rule 476. (1) Section 508 of the ASME code shall apply to operation, operation devices, and control equipment.~~

~~(2) Hand cable operation is prohibited.//~~

R 408.8477 **Rescinded.**//Hoisting cables.

~~Rule 477. (1) Only iron (low carbon steel) or steel wire cables which have fibre cores and which have a commercial classification of "elevator wire cable" shall be used for the suspension of elevator cars and counterweights. The wire material for cables shall be manufactured by the open hearth or electric furnace process or equivalent.~~

~~(2) Suspension means shall be not less than 2 iron or steel wire 3/8 inch diameter cables.~~

~~(3) Section 512 of the ASME code shall apply to the factor of safety, arc of contact, and method of fastening.//~~

R 408.8478 **Rescinded.**//Data plates and signs.

~~Rule 478. (1) A metal plate shall be placed upon the landing side of the crosshead of each elevator bearing the following information:~~

~~(a) The total weight of the car, including safeties.~~

~~(b) The contract car speed in feet per minute at which the elevator is designed to travel.~~

~~(c) The cable data required by rule 212.2a.~~

~~(2) A permanent metal sign stating "EMPLOYEES ONLY," with block letters not less than 2 inches in height shall be displayed at the ground floor landing.//~~

R 408.8481 **Rescinded.**//Applicability of national standard and rules of board.

~~Rule 481. (1) The standards contained in the American national standards institute safety standards for manlifts, ANSI/ASME A90.1-1985 are adopted in these rules by reference as rules for belt manlifts in this state, with the exception of rules 1.1 and 1.2. These standards may be purchased at American National Standards Institute, 1430 Broadway, New York, New York 10018 or the Michigan Department of Labor, 7150 Harris Drive, Box 30255, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of \$33.00. A copy of these standards and the general rules of the board are on file in the Lansing office of the department of labor and are available for public inspection.~~

~~(2) This rule and R 408.8483 apply to manlifts that are used only to carry plant personnel in granaries, flour mills, parking garages, and similar buildings or occupancies. Belt manlifts shall not be used by the public and, if located in buildings to which the public has access, shall be located in an enclosure that is protected by self-closing, spring locked doors. Keys to the doors shall be available to employees. The use of belt manlifts during construction is prohibited.~~

~~(3) The hoistway enclosure shall be in compliance with the requirements of R 408.30101 et seq. and shall maintain the fire rating of the structure.//~~

R 408.8483 **Rescinded.**//Landings.

~~Rule 483. (1) Where the travel is 50 feet or more between floor landings, 1 or more emergency landings shall be provided so that there will be a landing for every 25 feet or less of manlift travel. Emergency landings shall be completely enclosed with an approved guard railing and toeboard.~~

~~(2) The travel of any single belt manlift installed after February 14, 1968, shall not exceed 100 feet.//~~

R 408.8511 **Rescinded.**//Applicability of national standard and rules of board.

~~Rule 511. The standards contained in the American national standards institute safety standards for personnel hoists, A10.4-1981, are adopted and incorporated herein by reference as rules for personnel hoists in this state with the exception of rules 6.2, 24.3.1, 26.4.8, and 26.4.8.1. These rules may be purchased from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or the Michigan Department of Labor, 7150 Harris Drive, P.O. Box 30015, Lansing, Michigan 48909, at a cost of \$7.75. A copy of these standards and the general rules of the board are on file in the Lansing office of the department of labor and are available for public inspection.//~~

R 408.8512 **Rescinded.**//~~Location:~~

~~Rule 512. (1) This kind of elevator shall be installed not less than 12 feet from any other lifting or lowering apparatus.
(2) A hoistway shall not be located either partially or wholly over sidewalks or passageways.//~~

R 408.8513 **Rescinded.**//~~Authorized uses:~~

~~Rule 513. (1) The only persons permitted to ride on a personnel hoist are workmen and other authorized personnel associated with the work being done.
(2) A personnel hoist may be used for carrying materials if it is designed and installed for the type of load to be used and if no passengers are carried during the time materials are being carried except those necessary to handle the materials.
(3) The load on a personnel hoist shall not exceed the maximum rated load established by the department.//~~

R 408.8514 **Rescinded.**//~~Hoistway doors and gates:~~

~~Rule 514. (1) Every hoistway door shall be equipped with an approved interlock.
(2) Sliding doors and gates shall be constructed of metal and shall be of a design which will reject a ball 1 1/2 inches in diameter.//~~

R 408.8515 **Rescinded.**//~~Winding drum machines:~~

~~Rule 515. Winding drum machines may be used irrespective of car travel if the drums are grooved for hoisting wire rope. Grooves shall be machine finished and shall be of the helical or parallel type. Only 1 layer of rope shall be permitted on the drum.//~~

R 408.8516 **Rescinded.**//~~Overhead protection:~~

~~Rule 516. A personnel hoist shall have overhead protection equivalent to 2-inch plank. The planks shall be secured. The exit cover shall be hinged and locked and open outward.//~~

R 408.8517 **Rescinded.**//~~Wire rope:~~

~~Rule 517. (1) Hoisting and counterweight wire ropes shall be attached to cars and counterweights by means of zinc-coated or galvanized dropforged nondeforming cable clamps and wire rope thimbles, or by approved special fastening devices.
(2) When extra wire rope is carried on top of the frame of the hoisting platform, a drum and clamp tie-down or equivalent type anchor device which will not damage or deform the wire rope shall be used.~~

~~-(3) Approved babbitted rope sockets may be provided.//~~

R 408.8518 **Rescinded.**//Stop switches

~~-Rule 518. An approved type stop switch that can be locked out of use when the operator leaves the car and that does not require manual resetting of the control panels shall be provided in the car of every personnel hoist.//~~

R 408.8519a **Rescinded.**//Permissible voltages in hoistway or on car.

~~-Rule 519a. The maximum system or circuit potential permitted on any equipment in the hoistway or on the car shall be not more than 600 volts. Where the potential exceeds 120 volts, either a grounding conductor shall be incorporated in the traveling cable or a separate grounding conductor shall be installed. A visual indicator shall be included in the grounding circuit, so arranged as to indicate continuously the continuity of the grounding conductor. The type and size of the grounding conductor and the grounding fastening means shall conform to the requirements of ANSI/NFPA 70-1984, which is incorporated herein by reference. This code may be purchased from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, or from the Michigan Department of Labor, Bureau of Construction Codes, State Secondary Complex, 7150 Harris Drive, P.O. Box 30015, Lansing, Michigan 48909, at a cost of \$15.00 each. The grounding circuit shall include a device which will interrupt the electric circuit to the load in the event of a ground fault.//~~

R 408.8520 **Rescinded.**//Buffers.

~~-Rule 520. Spring type car and counterweight buffers shall be used for rated speeds not exceeding 300 feet per minute. For rated speeds of more than 200 feet per minute the buffer strokes shall conform to the following:~~

~~-(a) 201-250 feet per minute—6 inch stroke.~~

~~-(b) 251-300 feet per minute—9 inch stroke.//~~

R 408.8523a **Rescinded.**//Rated load safety test.

~~-Rule 523a. A rated load safety test, as required by ANSI/A10.4, rule 26.2.1.1, shall be performed by a licensed elevator contractor in the presence of a general elevator inspector every 90 days.//~~

R 408.8524 **Rescinded.**//Limit of speed.

~~-Rule 524. The rated speed shall not be more than 300 feet per minute.//~~

R 408.8525 **Rescinded.**//Signal devices.

~~-Rule 525. One of the following signal systems shall be provided:~~

~~-(a) An approved signal device shall be provided to enable persons on each landing to signal the operator to stop, and an emergency bell shall be provided to signal the operator to return to the bottom landing.~~

~~-(b) An approved type voice communication system shall be provided between the car and landings and the project manager or job site superintendent's office.//~~

R 408.8531 **Rescinded.**//Frames and platforms.

~~Rule 531. Rule 2000.6a of the ASME A18.1 code is amended to read as follows:
 2000.6a. The car frame shall be of metal construction and have a factor of safety of not less than 5 based on the rated load. The platform shall be of metal construction and have a nonskid surface. Construction shall be in compliance with the requirements of rules 204.1b and 204.1c of the ASME code. Any of the following shall be provided on each platform entrance:~~

- ~~-(a) A solid door which is 42 inches high and which has an electric contact.~~
- ~~-(b) Light rays that are provided at 3 inches and 12 inches above floor level.~~
- ~~-(c) A proximity device that is effective from 1 inch above floor level to a height of 42 inches above floor level.~~
- ~~-(d) Other types of devices approved by the board. The operation of the device shall remove the electric power from the motor and brake.//~~

R 408.8532 **Rescinded.**//Platform area.

~~Rule 532. Rule 2000.6c of the ASME code is amended to read as follows:
 2000.6c. The platform shall have a clear floor area under the grab rail of not less than 32 inches wide by 54 inches long, shall have a total area of not more than 18 feet squared, and shall serve not more than 2 landings.//~~

R 408.8533 **Rescinded.**//Rated load, speed, and travel.

~~Rule 533. Rule 2000.7a of the ASME code is amended to read as follows: 2000.7a. The rated load shall be not less than 450 pounds nor more than 750 pounds. The lift shall be capable of sustaining and lowering a load as specified in rule 207.1 of the ASME code. The rated speed shall not be more than 15 feet per minute. The travel shall not be more than 12 feet nor penetrate a floor.//~~

R 408.8534 **Rescinded.**//Frames and platforms.

~~Rule 534. Rule 2001.6a of the ASME code is amended to read as follows:
 2001.6a. (1) The car or platform frame shall be of metal construction and have a factor of safety of not less than 5 based on rated load. The platform shall be of metal construction and have a nonskid surface. Construction shall be in compliance with the requirements of rules 204.1b and 204.1c of the ASME code.
 (2) The platform shall have a clear floor area under the grab rail of not less than 32 inches wide by 54 inches long, shall have a total area of not more than 18 feet squared, and shall serve not more than 2 landings.
 (3) Metals that have an elongation of less than 20% in a length of 2 inches shall not be used in the construction of any member of the car frame or platform.
 (4) Glass, where used, shall be in compliance with rule 204.1h of the ASME code.//~~

R 408.8535 **Rescinded.**//Platform guarding.

~~Rule 535. Rule 2001.6c of the ASME code is amended to read as follows:
 2001.6c. Platform guarding shall be pursuant to rule 2001.6c(1) or rule 2001.6c(2) of the ASME code where approved by the authority having jurisdiction.
 (1) The platform shall be equipped with a self closing door not less than 42 inches high on the sides of access to the lower landing. The door shall be of solid construction and provided with a combination mechanical lock and electric contact and shall only be~~

~~operable within 2 inches of the lower landing. The combination mechanical lock and electric contact may permit the platform to move when the door or gate is in the closed position, but not locked, if the device will stop the platform when the door or gate fails to lock before the platform has moved more than 2 inches away from the landing.~~

~~The platform side guards on the sides not used for access or exit shall be of smooth construction to a height of 42 inches above the platform and shall not have openings other than openings necessary for operation. Openings necessary for operation shall reject a ball that is 1/2 inch in diameter. A grab rail extending the full length of either side guard shall be provided at a height of 36 inches. The running clearance between the side guards and the enclosure shall be not less than 2 inches nor more than 3 inches.~~

~~(2) A metal guard that is not less than 1/8 inch thick and not less than 9 inches high shall be provided for the full width of the platform to prevent a wheelchair from rolling off the lower access end of the platform when in use. The guard may be actuated automatically by movement from the landing.~~

~~Means shall be provided to prevent the wheelchair from rolling off the platform at the upper access end. When the platform is in use, the incline of the ramp shall be as follows:~~

~~(a) Not more than 1 in 6 for heights up to 2 1/2 inches.~~

~~(b) Not more than 1 in 8 for heights of more than 2 1/2 inches and less than 3 inches.~~

~~(c) Not more than 1 in 12 for heights of 3 inches or more.~~

~~A hand grip shall be provided at a height of not less than 36 inches from the platform://~~

R 408.8536 Rescinded.//Controls and electrical equipment.

~~Rule 536. (1) The operating control shall be a constant pressure type control. Keyed-type operation is not permitted in buildings other than private residences.~~

~~(2) A separate fused disconnecting means or circuit breaker that is not accessible to the general public shall be provided.~~

~~(3) Electrical wiring and components in the device and its installation shall be in compliance with the standards of the national electrical code, NFPA 70 1996, which is adopted in these rules by reference in R 408.8141://~~

R 408.8536a Rescinded.//Rated load and speed.

~~Rule 536a. Rule 2001.7a of the ASME code is amended to read as follows: 2001.7a. The capacity shall be 1 person. The rated load shall be not less than 450 pounds and not more than 750 pounds. The lift shall be capable of sustaining and lowering a load as specified in rule 207.1 of the ASME code. The rated speed shall not be more than 15 feet per minute://~~

R 408.8537a Rescinded.//Rated load and speed.

~~Rule 537a. Rule 2002.7a of the ASME A18.1 code is amended to read as follows:~~

~~2002.7a The capacity shall not be more than 2 persons. The rated load shall not be less than 250 pounds for a 1-seat lift and not less than 400 pounds for a 2-seat lift. The rated speed shall not be more than 25 feet per minute://~~

R 408.8538 Rescinded.//Frames and platform.

~~Rule 538. Rule 2100.6a of the ASME code is amended to read as follows:~~

~~2100.6a. The car frame shall be of metal construction and have a factor of safety of not less than 5 based on the rated load. The platform shall be of metal construction and have a nonskid surface. Construction shall be in compliance with the requirements of rules 204.1b and 204.1c of the ASME code. The device shall be installed and maintained so that the means of egress is in compliance with the provisions of the applicable building code.//~~

R 408.8539 **Rescinded.**//Platform area.

~~Rule 539. Rule 2100.6c of the ASME code is amended to read as follows:~~

~~2100.6c. The inside net platform area shall not be more than 18 feet squared and shall serve not more than 2 landings.//~~

R 408.8540 **Rescinded.**//Rated load, speed, and travel.

~~Rule 540. Rule 2100.7a of the ASME code is amended to read as follows:~~

~~2100.7a. The rated load shall be not less than 450 pounds nor more than 750 pounds. The lift shall be capable of sustaining and lowering a load as specified in rule 207.1 of the ASME code. The rated speed shall not be more than 15 feet per minute. The travel shall not be more than 6 feet nor penetrate a floor.//~~

R 408.8540a **Rescinded.**//Frames and platform.

~~Rule 540a. Rule 2101.6a of the ASME code is amended to read as follows:~~

~~2101.6a. (1) The car or platform frame shall be of metal construction and have a factor of safety of not less than 5 based on rated load. The platform shall be of metal construction and have a nonskid surface. Construction shall be in compliance with the requirements of rules 204.1b and 204.1c of the ASME code. The device shall be installed and maintained so that the means of egress is in compliance with the provisions of the applicable building code.~~

~~(2) The inside net platform area shall not be more than 18 feet squared.~~

~~(3) Metals that have an elongation of less than 20% in a length of 2 inches shall not be used in the construction of any member of the car frame or platform.~~

~~(4) Glass, where used, shall be in compliance with rule 204.1h of the ASME code.//~~

R 408.8540b **Rescinded.**//Rated load and speed.

~~Rule 540b. Rule 2101.7a of the ASME code is amended to read as follows:~~

~~2101.7a. The capacity shall be 1 person. The rated load shall be not less than 450 pounds and not more than 750 pounds. The lift shall be capable of sustaining and lowering a load as specified in rule 207.1 of the ASME code. The rated speed shall not be more than 15 feet per minute.//~~

R 408.8540c **Rescinded.**//Rated load and speed.

~~Rule 540c. Rule 2102.7a of the code is amended to read as follows:~~

~~2102.7a. The capacity shall not be more than 2 persons. The rated load shall not be less than 250 pounds for a 1 seat lift and not less than 400 pounds for a 2 seat lift. The rated speed shall not be more than 25 feet per minute. The device shall be installed and maintained so that the means of egress is in compliance with the provisions of the applicable building code.//~~

R 408.8541 Rescinded.//Applicability of rules:

~~–Rule 541. (1) The design, installation, and operation of outdoor incline lifts shall be subject to the approval of the department and the rules promulgated by the board.~~

~~–(2)//On and after September 1, 1971, these rules shall govern existing commercial installations and new commercial installations; further, these rules shall also govern new private installations, but shall not govern private installations existing before September 1, 1971.~~

~~–(3) The following rules shall not apply to private installations of outdoor incline lifts: R 408.8543, R 408.8545, R 408.8547, and R 408.8555.~~

~~–(4) "Private installations" means any outdoor incline lift restricted for use by the owner and his or her immediate family and their nonpaying guests. All other outdoor incline lift installations shall be classified as commercial.//~~

R 408.8542 Rescinded.//Engineers' approval:

~~–Rule 542. The design of structural members and component parts for an incline lift submitted to the elevator safety division after September 1, 1971, shall bear the seal of approval of a registered professional engineer before issuance of a permit will be considered.//~~

R 408.8543 Rescinded.//Enclosures for runways and driving machines:

~~–Rule 543. (1) The sides of an incline lift runway which is accessible to the general public shall be enclosed along its entire length. A minimum clearance of 2 feet shall be maintained between the enclosure and any moving part. The enclosure shall be of such size and material as will reject a 2-inch ball. The height of the enclosure shall be not less than 7 feet and so supported and braced as to deflect not over 1 inch when subjected to a force of 100 pounds applied horizontally at any point.~~

~~–(2) Approved spring buffers shall be installed at the bottom of the runway.~~

~~–(3) A driving machine and controller shall be located within a locked enclosure. This enclosure shall be so supported and braced so as to deflect not over 1 inch when subjected to a force of 100 pounds applied horizontally at any point.//~~

R 408.8544 Rescinded.//Electrical installations:

~~–Rule 544. (1) A fused disconnect switch or a circuit breaker shall be installed within the machine enclosure and connected to the power supply line to each electric motor.~~

~~–(2) An electrical fitting exposed to any weather conditions and any wiring shall be in compliance with the requirements of the national electric code, NFPA 70-1996, which is adopted in these rules by reference in R 408.8141.//~~

R 408.8545 Rescinded.//Landing entrance doors and gates:

~~–Rule 545. (1) A landing opening of an incline lift shall be protected by a door or gate extending from a maximum of 1 inch above the floor to a minimum height of 7 feet and shall be self-closing.~~

~~–(2) A landing door or gate shall be solid or may have openings of such size and material as will reject a ball 3/4 inch in diameter.~~

~~-(3) A landing door or gate shall be provided with an approved type mechanical lock and electric contact or interlocks. Contact voltage shall not exceed 120 nominal volts.~~

~~-(4) A landing door or gate shall be so supported and braced as to deflect not over 1 inch when subjected to a force of 100 pounds applied horizontally at any point. Grilles when used shall be not less than no. 13 steel wire gauge.//~~

R 408.8546 **Rescinded.**//Car doors and gates.

~~-Rule 546. (1) A car shall have a car door or gate at each entrance which shall swing into the car or slide horizontally.~~

~~-(2) A car door or gate shall be equipped with an approved type of mechanical lock and plug proof electrical contact.~~

~~-(3) A car door or gate shall be at least 6 feet in height with a bottom clearance of not more than 1 inch, and shall be of such size and material as will reject a ball 3/4 inch in diameter.//~~

R 408.8547 **Rescinded.**//Car enclosures and capacity.

~~-Rule 547. (1) All sides of the car shall be permanently enclosed except the portion used as an entrance or entrances.~~

~~-(2) The enclosures may be of wood, metal or other approved material and may be designed with open work material. An opening is not to be more than 3/4 inch square and so supported and braced as to deflect not over 1 inch when subjected to a force of 100 pounds applied horizontally at any point.~~

~~-(3) An enclosure shall be not less than 6 feet in height.~~

~~-(4) A capacity sign which states the rated load shall be conspicuously located in the car.~~

~~-(5) The rated load of a car shall be determined pursuant to the following table:~~

~~Maximum Inside Net Platform Areas for the Various Rated Loads~~

Inside Net		Inside Net	
Rated Load	Platform Area	Rated Load	Platform Area
lb.	sq. ft.	lb.	sq. ft.
500	7.0	4500	46.2
600	8.3	5000	50.0
700	9.6	6000	57.7
1000	13.25	7000	65.3
1200	15.6	8000	72.9
1500	18.9	9000	80.5
1800	22.1	10000	88.0
2000	24.2	12000	103.0
2500	29.1	15000	125.1
3000	33.7	18000	146.9
3500	38.0	20000	161.2
4000	42.2	25000	196.5
		30000	231.0//

R 408.8548 **Rescinded.**//Car safety devices.

- ~~–Rule 548. (1) An incline lift shall be equipped with an approved car safety device capable of stopping and holding the rated load.~~
- ~~–(2) The maximum rated car speed shall be not more than 75 feet per minute.~~
- ~~–(3) An installation shall be subject to a full load safety test at the time of final inspection which shall be witnessed by a general elevator inspector of the department.~~
- ~~–(4) An installation shall be equipped with a safety operated switch on the car to automatically cut off the power from the machine and apply the brake when the safety sets.~~
- ~~–(5) A power incline lift which has a winding drum type machine shall have a device which cuts off the power to the machine and applies the brakes if a cable becomes slack or breaks regardless of the position of the car on the runway. This device shall be arranged to stay in the open position until manually reset.//~~

R 408.8549 **Rescinded.**//Controls.

- ~~–Rule 549. (1) The operating device shall be of an enclosed electrical type with constant pressure button and shall be located at each landing and on the car. Keyed “off” and “on” switches shall be provided at each landing.~~
- ~~–(2) A car shall be equipped with an emergency stop switch which shall:~~
 - ~~–(a) Be of the manually opened and closed type.~~
 - ~~–(b) Have red operating handles or buttons.~~
 - ~~–(c) Be conspicuously and permanently marked, “Stop.”~~
 - ~~–(d) Be positively opened mechanically and its opening shall not be solely dependent on springs.//~~

R 408.8550 **Rescinded.**//Final limit switches.

- ~~–Rule 550. An incline lift shall have final limit switches opened only by the car and so located within the runway as to cut off power to the machine and apply the brake within the limits of the top and bottom overtravel.//~~

R 408.8551 **Rescinded.**//Normal terminal stopping devices.

- ~~–Rule 551. (1) Upper and lower normal terminal stopping devices shall be provided and arranged to stop the car automatically at or near the top and bottom terminal landings with any load up to and including the rated load in the car and from any speed attained in normal operation. The devices shall function independently of the operating device and of the final terminal stopping device. The device shall be so designed and installed that it will continue to function until the final terminal stopping device operates.~~
- ~~–(2) A drum machine shall be equipped with approved type machine limits.//~~

R 408.8552 **Rescinded.**//Machines and brakes.

- ~~–Rule 552. (1) Machines shall be of the direct drive type.~~
- ~~–(2) The brake shall be located either on the machine or main drive shaft. A mechanical speed retarder shall be provided which will limit the car speed to not more than 125% of the rated speed in case of a runaway car. The department may approve other types of overspeed devices.~~
- ~~–(3) A hoisting motor shall have a manually reset type of electrical overload device.//~~

R 408.8553 **Rescinded.**//Cables and drums:

~~–Rule 553. (1) The number of hoisting cables shall be not less than 2. The minimum diameter of the hoisting cable shall be not less than 3/8 inch. The cables shall be made of steel or comparable material approved by the department.~~

~~–(2) The diameter of the hoisting drum shall not be less than 30 times the diameter of the hoisting cable. When the car is at its extreme limits of travel not less than 1 1/2 turns of the cable shall remain on the drum.~~

~~–(3) Cable fastenings shall be by at least 2 nondeforming type clamps with cable thimbles or tapered babbitted rope sockets. U-bolt type cable clips or clamps are prohibited.~~

~~–(4) A hoisting drum shall have machine-cut grooves with a corresponding groove for each cable.~~

~~–(5) The factor of safety for a hoisting cable shall be not less than 7.//~~

R 408.8554 **Rescinded.**//Guides, tracks, and cables:

~~–Rule 554. (1) An incline lift car shall run on approved metal guides, tracks, or cables which will not allow the car or its assembly to leave the guides, tracks, or cables.~~

~~–(2) The guides, tracks, or cables and their supports shall be designed, spaced, and fastened so that the whole assembly will satisfactorily withstand, without undue deflection or permanent deformation, the application of the car safety when stopping the car with its rated load at its maximum obtainable speed.//~~

R 408.8555 **Rescinded.**//Periodic tests:

~~–Rule 555. A full load maintenance test shall be performed annually on an incline lift to conform to the applicable rules of section 900 of the standard by a licensed elevator contractor who shall submit to the department a statement upon a form furnished by it certifying that the tests have been conducted and the results thereof. (See R 408.8103(10)).//~~

R 408.8556 **Rescinded.**//Factor of safety:

~~–Rule 556. The factor of safety for all component parts except hoist cables of an incline lift shall be not less than 5 based on the rated load.//~~

R 408.8561 **Rescinded.**//Escalators:

~~–Rule 561. Rules promulgated by the board and the ASME code shall apply to escalators.//~~

R 408.8562 **Rescinded.**//Sidewalk elevators:

~~–Rule 562. Rules promulgated by the board and the ASME code shall apply to sidewalk elevators.//~~

R 408.8563 **Rescinded.**//Dumbwaiters:

~~–Rule 563. Rules promulgated by the board and the ASME code shall apply to dumbwaiters.//~~

R 408.8571 **Rescinded.**//Applicability.

~~–Rule 571. The rules in this subpart apply to electric powered elevators used in sewage lift stations.//~~

R 408.8572 **Rescinded.**//Public access.

~~–Rule 572. A sewage lift station personnel elevator shall not be accessible to the general public and shall be limited to use by employees only.//~~

R 408.8573 **Rescinded.**//Location, counterweights, and speed.

~~–Rule 573. (1) The elevator may be installed in the entrance well.~~

~~–(2) When counterweights and buffers are provided, the rules pertaining thereto shall apply.~~

~~–(3) The rated speed of a car shall not exceed 35 feet per minute.//~~

R 408.8574 **Rescinded.**//Guarding exposed equipment.

~~–Rule 574. Exposed gears, sprockets, tape or rope sheaves, drums of selectors, floor controllers, signal machines and the ropes, chains or tapes for driving them shall be guarded to protect against accidental contact.//~~

R 408.8575 **Rescinded.**//Supports and foundations.

~~–Rule 575. (1) Machines, machinery and sheaves shall be supported and maintained in place so as to prevent any part from becoming loose or displaced.~~

~~–(2) Supporting beams shall be of steel. Beams are not required under machines, sheaves and machinery or control equipment which are supported on floors provided that the floors are designed and installed to support the load imposed on the floor.//~~

R 408.8576 **Rescinded.**//Distance from car platform to floor level.

~~–Rule 576. The distance from the top of a car platform at the lowest landing shall be not more than 20 inches above the floor level. The means of descent from the car platform shall not constitute a hazard.//~~

R 408.8577 **Rescinded.**//Car and counterweight clearances.

~~–Rule 577. (1) When a car platform is level with the lowest landing, the car buffer striker plates shall not be in contact with the buffers.~~

~~–(2) When the car is at its extreme limit of normal travel, there shall be not less than 6 inches between the top of the car crosshead and the nearest obstruction.~~

~~–(3) When the counterweights are resting on their buffers, there shall be not less than 3 inches between the top of the car crosshead and the nearest obstruction.~~

~~–(4) When the car is resting on its buffers there shall be not less than 3 inches clearance between the top of the counterweights and the nearest obstruction.~~

~~–(5) The clearances between the car and the hoistway enclosure, hoistway sill or any obstruction shall be not less than 3/4 inch.~~

~~–(6) The clearance between the car platform sill and hoistway edge shall be not more than 5 inches.~~

~~-(7) The underside of a projection into the hatch shall be beveled at an angle of not less than 75 degrees with the horizontal unless protected by a safety device to stop the ascending car.~~

~~-(8) The top of the lower landing entrance shall be provided with a safety device to stop the ascending car if for any reason an overhanging obstruction on the car comes in contact with a shear hazard.//~~

R 408.8578 Rescinded.//Landing openings.

~~-Rule 578. (1) If an upper landing side entrance door is provided, the entrance shall be not less than 6 1/2 feet in height.~~

~~-(2) The top of the hoistway shall be provided with an overlapping, self-locking hinged cover designed to lock the closed side entrance door when the lift station is unoccupied.//~~

R 408.8579 Rescinded.//Locking devices.

~~-Rule 579. (1) The hinged cover and the upper landing side entrance door, when provided, shall be provided with a mechanical latch and an electrical contact designed to be operated from inside the hoistway.~~

~~-(2) A locking device shall be provided to prevent the top hinged cover from locking the upper landing side entrance door when the lift station is occupied.//~~

R 408.8580 Rescinded.//Guide rails.

~~-Rule 580. (1) A car and counterweight shall be provided with guide rails of steel.~~

~~-(2) A guide rail shall be securely fastened with through bolts or clips of strength, design and spacing as follows:~~

~~-(a) A guide rail and its fastenings shall not deflect more than 1/4 inch under normal operations.~~

~~-(b) A guide rail and its fastenings shall withstand the application of the safety, when stopping the car with a rated load or when stopping the counterweights.~~

~~-(c) A guide rail shall rest on supports and extend at the top of the hoistway to prevent the guide shoes from running off the guide rail in case the car or the counterweight travels beyond the terminal landings.//~~

R 408.8581 Rescinded.//Frames, enclosures, platforms, capacity, and final limits.

~~-Rule 581. (1) A car frame and platform shall be of metal. Frame members shall be securely bolted and braced. The factor of safety shall not be less than 4 with a uniformly distributed rate load.~~

~~-(2) The car shall be enclosed to the extent necessary to afford reasonable protection.~~

~~-(3) The platform area shall not exceed 5 square feet.~~

~~-(4) The rated capacity shall be not less than 300 pounds.~~

~~-(5) The limit of travel for the elevator shall be not more than 50 feet.//~~

R 408.8582 Rescinded.//Emergency exits.

~~-Rule 582. A car shall be provided with an emergency exit giving egress from the car to an emergency ladder from any location in the hoistway and shall be provided with electrical contacts to prevent movement of the car while the emergency exit is open.//~~

R 408.8583 **Rescinded.**//Safeties and governors.

- ~~–Rule 583. (1) A car shall be provided with a car safety capable of stopping and sustaining the car with a rated load.~~
- ~~–(2) The car safety shall be of the inertia or other type approved by the board, operated as a result of the breakage of the hoisting mechanism or by a speed governor. A governor of the speed governor type shall operate to set the safety at a speed of not more than 175 feet per minute and on breakage of the suspension means. The safety shall operate without appreciable delay and independently of the governor speed action.~~
- ~~–(3) Where a speed governor is used, it shall be located where there is sufficient space for full movement of the governor parts and where the governor cannot be struck by the car or counterweight in case of overtravel.~~
- ~~–(4) A safety operated switch shall be provided to open the motor control circuit and the brake control circuit before or at the time the safety applies.~~
- ~~–(5) A governor rope shall be of iron, steel, Monel Metal or phosphor bronze not less than 1/4 inch in diameter. Tiller rope construction shall not be used for a governor rope.~~
- ~~–(6) An elevator of the winding drum type or roller chain drive type shall be provided with a slack rope device of the manually reset type which will remove the power from the motor and brake if the car is obstructed in its descent and the hoisting chain or rope slackens.~~
- ~~–(7) A car safety device which depends upon completion of maintenance of an electric circuit for application of the safety shall not be used. A car safety shall be applied mechanically.~~
- ~~–(8) Cast iron shall not be used in construction of any part of a car safety, the breakage of which would result in failure of the safety to function to stop and sustain the car.~~
- ~~–(9) A test of a car safety shall be made with a rated load in the car before the elevator is put into service. Governor operation of an instantaneous type safety shall be tested at rated speed by tripping the governor by hand. A safety operated as the result of the breaking of the hoisting mechanism shall be tested by obtaining the necessary slack rope to cause it to function.~~
- ~~–(10) An overspeed governor shall be provided for a traction machine.//~~

R 408.8585 **Rescinded.**//Driving machines and sheaves.

- ~~–Rule 585. (1) A sprocket, winding drum, traction sheave and overhead and deflecting sheave shall be of cast iron or steel. The diameter of a sheave shall not be less than 30 times the diameter of the wire hoisting rope. The rope grooves shall be machined, except where 8 x 19 steel ropes are used; where 8 x 19 steel ropes are used, the diameter of drums and sheaves may be reduced to 21 times the diameter of the rope.~~
- ~~–(2) The factor of safety, based on the static load, that is, the rated load plus the weight of the car or chains, ropes and counterweights, to be used in the design of a driving machine and sheave, shall be not less than:~~
 - ~~–(a) Eight for wrought iron and steel.~~
 - ~~–(b) Ten for cast iron, cast steel and other material.~~
- ~~–(3) A set screw fastening shall not be used in lieu of a key or pin if the connection is subject to torque or tension.~~
- ~~–(4) A friction gearing or clutch mechanism shall not be used for connecting the sprockets, drum or sheaves to the main driving gear.~~

- ~~-(5) Worm gearing having cast iron teeth shall not be used.~~
- ~~-(6) A driving machine shall be equipped with an electrically released spring-applied brake.~~
- ~~-(7) A single ground or short circuit, a counter voltage or a motor field discharge shall not prevent the brake magnet from allowing the brake to set when the operating device is placed in the stop position://~~

R 408.8587 Rescinded.//Terminal stopping devices.

- ~~Rule 587. (1) Upper and lower normal terminal stopping devices operated by a car shall be provided and shall be set to stop the car at, or near the upper and lower terminal landings. Upper and lower final terminal stopping devices operated by the car shall also be provided and shall be set to stop the car before it strikes either the overhead or obstruction at the lower floor level. A final terminal stopping device shall be provided on and operated by the driving machine of the winding drum type.~~
- ~~-(2) The final terminal stopping device shall act to prevent movement of the car in both directions of travel. The normal and final terminal stopping devices shall not control the same switches on the controller unless 2 or more separate and independent switches are provided, 2 of which shall be closed to complete the motor and brake circuit in each direction of travel://~~

R 408.8588 Rescinded.//Operation and operation devices.

- ~~Rule 588. (1) The operation at top and bottom landings shall be of the constant pressure type.~~
- ~~-(2) The car operating device shall be of the constant pressure push button type with the face of the button not to project beyond the face of the button plate; and it shall be of the 2 hand control type.~~
- ~~-(3) An emergency stop switch shall be provided on or adjacent to the car operating panel. A stop switch shall be of the manually opened and manually closed type with a red handle or button and conspicuously marked "Stop." Spring failure shall not prevent opening of the switch where springs are used://~~

R 408.8589 Rescinded.//Control and operating circuits.

- ~~Rule 589. The design and installation of the control and operating circuits shall conform to the following:~~
- ~~-(a) A control system which depends on completion or maintenance of an electric circuit shall not be used for:~~
 - ~~-(i) Interruption of the power and application of machine brake at the terminals.~~
 - ~~-(ii) Stopping of the car when the emergency stop switch in the car is opened or when any of the electrical protective devices operate.~~
 - ~~-(iii) Stopping the machine when the safety applies.~~
- ~~-(b) A spring used to actuate a switch, contactor or relay to break the circuit in order to stop a car at the terminal shall be of the compression type.~~
- ~~-(c) The failure of a single magnetically operated switch or relay or contactor to release or operate in the intended manner, or the occurrence of a single accidental ground, shall not permit the car to run://~~

R 408.8590 **Rescinded.**//Hoisting cables.

- ~~–Rule 590. (1) Only iron, low carbon steel or steel wire cables with fibre cores, having the commercial classification “elevator wire cable,” shall be used for suspension of an elevator car and counterweights. The wire material for a cable shall be manufactured by the open hearth or electric furnace process or their equivalent.~~
- ~~–(2) Suspension means shall be not less than 2 iron or steel wire cables having a diameter of not less than 1/4 inch.~~
- ~~–(3) The factor of safety of the suspension means shall be not less than 7.~~
- ~~–(4) The arc of contact of a wire rope on a traction sheave shall be sufficient to produce adequate traction under all load conditions.~~
- ~~–(5) A wire rope anchored to a winding drum shall have not less than 1 full turn of rope on the drum when the car or counterweight has reached its limit of possible overtravel.~~
- ~~–(6) A car or counterweight wire rope shall not be lengthened or repaired by splicing.~~
- ~~–(7) The winding drum end of a car and counterweight wire rope shall be secured by a clamp on the inside of the drum.~~
- ~~–(8) The car or counterweight end of a wire rope shall be fastened by return loop, by individual tapered babbitted sockets, or by an alternate method approved by the board. A clamp of the U bolt type shall not be used.//~~

R 408.8591 **Rescinded.**//Hoisting chains.

- ~~–Rule 591. (1) Only roller chain made of high quality alloy, heat treated steel with the following characteristics is acceptable for hoisting chains:~~
- ~~–(a) Prestressed.~~
- ~~–(b) Shot peened.~~
- ~~–(c) In line blanking.~~
- ~~–(d) Deep case hardening of pins and bushings.~~
- ~~–(2) Suspension means shall not be less than 2 separate roller chains, each chain having a tensile strength of not less than 3,500 pounds.~~
- ~~–(3) The factor of safety of the suspension means shall be not less than 7.~~
- ~~–(4) A chain shall have not less than 6 inches of chain available beyond the normal stopping point when the car has reached its extreme limits of travel.~~
- ~~–(5) A chain end shall be fastened by standard master links.//~~

R 408.8592 **Rescinded.**//Wiring and lighting.

- ~~–Rule 592. (1) Electric wiring shall be in rigid metal conduit or electrical metallic tubing.~~
- ~~–(2) A traveling cable used between the car and hoistway wiring shall be in compliance with the national electrical code, NFPA 70-1996, section 620.11(b), which is adopted in these rules by reference in R-408.8141.~~
- ~~–(3) A fused disconnect main line switch externally operated shall be provided adjacent to the controller.~~
- ~~–(4) Hoistway lighting shall be provided.//~~

R 408.8595 **Rescinded.**//Inspection and tests.

- ~~–Rule 595. (1) An existing installation and a new elevator installation, after being placed in service, shall be subjected to maintenance inspections and tests.~~

- ~~-(2) Maintenance inspections and tests of elevator car and counterweight safeties and governors shall be made at intervals of not more than 12 months.~~
- ~~-(3) The owner or his authorized agent shall have maintenance inspections and tests made by a person qualified to perform them in the presence of an inspector in the employ of or authorized by the department, of labor except where such an inspector is not available. When the required tests are made, the person or firm conducting the tests shall:

 - ~~-(a) Submit to the department a statement upon a form furnished by it certifying that the tests have been conducted and further certifying to the results thereof.~~
 - ~~-(b) Attach to the governor rope a tag marked to show the date of the test and the name of the person or firm who conducted it.~~~~
- ~~-(4) The distance between any 100 continuous links of roller chain, measured from centerline of pin, shall not be more than + or - 1% of the rated pitch of the chain being tested. For example: 100 links of standard series single strand #40 roller chain, which has a pitch length of 1/2 inch shall not be more than 50 1/2 inches or less than 49 1/2 inches.~~
- ~~-(5) The inspection of chain links shall be made at not less than 3 points picked at random.//~~

R 408.8596 **Rescinded.**//Reshacking of hoisting ropes of drum type machines.

~~-Rule 596. The hoisting ropes of a power elevator having a drum type driving machine with one to one roping shall be reshacked at the car ends at intervals not more than 24 months for a machine located below or at the side of the hoistway.//~~

~~//PART IV. MODIFICATION OF AMERICAN STANDARD SAFETY CODE//~~

R 408.8601 **Rescinded.**//Scope.

~~-Rule 601. The rules of this part are modifications to certain identified rules of the ASME code. Pursuant to section 6 of the act, the rules as stated in this part shall apply rather than as stated in the ASME code.//~~

R 408.8611 **Rescinded.**//Fire resistance ratings.

~~-Rule 611. (1) The fire resistance ratings of hoistway enclosures, doors and door assemblies where fire resistive construction is required shall be not less than specified by local laws or ordinances.~~

~~-(2) Where local laws and ordinances do not specify fire resistance ratings, they shall be not less than 1 hour in fire resistive buildings and 3/4 hour in nonfire resistive buildings. However, a hoistway enclosure in stories, other than the basement, of a dumbwaiter serving not more than 2 consecutive stories may be no. 16 U.S. gauge unperforated sheet steel or equal. (This rule modifies rule 100.1b of the standard.)//~~

R 408.8613 **Rescinded.**//Access to hoistways for emergency purposes.

~~-Rule 613. (1) The elevator shall have hoistway doors which are unlocked when closed with the car at floor or which are locked but openable from landing by means effective only when the car is in the landing zone.~~

~~-(2) The operating means for unlocking the door may be mounted in a receptacle with a breakable transparent cover clearly marked "ELEVATOR DOOR KEY FOR FIRE DEPARTMENT AND EMERGENCY USE ONLY" in letters not less than 1/8 inch high. The receptacle shall be located in an area in each building designated by the department. This rule modifies rule 111.10 of the standard.//~~

R 408.8614 **Rescinded.**//~~Buffers and bumpers.~~

~~-Rule 614. (1) Buffers of the spring, oil, or equivalent type shall be installed under cars and counterweights of all elevators. This rule modifies rule 201.1a of the standard.~~

~~-(2) Solid bumpers where buffers are required are prohibited. This rule modifies rule 301.3 of the standard.//~~

R 408.8615 **Rescinded.**//~~Car frame and platform connections.~~

~~-Rule 615. Welding of parts upon which safe operation depends shall be done in accordance with section 213 of the ASME code and as approved by the department. This rule modifies section 213 of the ASME code.//~~

R 408.8617 **Rescinded.**//~~Light fuses and circuit breakers; installation.~~

~~-Rule 617. The fuses or circuit breakers for elevator car lights shall be installed in the machine room. This rule modifies rule 204.7a of the standard.//~~

R 408.8618 **Rescinded.**//~~Speed governors.~~

~~-Rule 618. (1) Car safeties, and counterweight safeties where furnished, shall be actuated by separate speed governors, except that governors are not required for the operation of safeties of sidewalk elevators that have a rated speed of not more than 50 feet per minute. (See rule 401.6 of the ASME code.)~~

~~-(2) The governor shall be located where it cannot be struck by the car or the counterweight in case of overtravel and where there is adequate space for full movement of governor parts.~~

~~-(3) Governors of the type that are entirely dependent upon friction between the governor rope and sheave for establishing the force necessary to operate the safeties are prohibited. This rule modifies rule 206.1 of the ASME code.//~~

R 408.8619 **Rescinded.**//~~Overloading of freight elevators.~~

~~-Rule 619. (1) A freight elevator shall not be loaded to exceed its rated load as specified on the capacity plate required by rule 207.3 of the standard except in case of:~~

~~-(a) A static load on an elevator loaded and unloaded by industrial trucks as noted on car capacity or separate plate. (See rules 207.2b-3 and 207.3b-1b of the standard.)~~

~~-(b) An elevator designed and installed in conformity with rule 207.7 of the standard to carry 1-piece loads exceeding its rated load.~~

~~-(2) Where it is determined by the department that safe operation requires it, a load-weighting device conforming to rule 210.11 of the standard shall be installed. The device shall be so designed and installed that when the load on the elevator platform is in excess of rated load, it shall prevent the electric power from being applied to the elevator driving machine motor and brake. (This rule modifies rule 207.6 of the standard.)//~~

R 408.8620 **Rescinded.**//Access doors and openings.

~~—Rule 620. (1) Access doors to machine rooms and overhead machinery spaces shall comply with all of the following requirements:~~

~~—(a) For machine rooms, be of a minimum width of 2 feet 6 inches and a minimum height of 6 feet 8 inches. For other spaces as specified in rule 101.4 b and c of the standard, be of a minimum width and height of 2 feet 6 inches.~~

~~—(b) Be self-closing and self-locking.~~

~~—(c) Be provided with a spring type lock arranged to permit the doors to be opened from the inside without a key.~~

~~—(d) Be kept closed and locked.~~

~~—(2) Doors are not required at openings in machine room floors for access to deflecting and secondary sheave spaces if the access opening is provided on all 4 sides with a railing not less than 42 inches high, 1 side of which is arranged to slide or swing to provide access to the ladder or stairs leading to the secondary sheave space. Trap doors, where provided, shall have railing or guard wings on all open sides.~~

~~—(3) Access openings in elevator hoistway enclosures where complete bodily entry is not required for maintenance and inspection of components shall comply with all of the following requirements:~~

~~—(a) Be of adequate size and located to permit the required maintenance and inspection.~~

~~—(b) Be a maximum width of 2 feet and a maximum height of 2 feet.~~

~~—(c) Be provided with doors which shall be kept closed and locked.//~~

R 408.8621 **Rescinded.**//Construction of dumbwaiter cars.

~~—Rule 621. Cars shall conform to all of the following requirements:~~

~~—(a) They shall be of solid or openwork construction and shall be of such strength and stiffness that they will not deform appreciably when the load leans or falls against the sides of the car.~~

~~—(b) Nonmetal cars shall be reinforced with metal from the bottom of the car to the point of suspension.~~

~~—(c) Metal car sections shall be riveted, welded, or bolted together.~~

~~—(d) Cars may be provided with hinged, permanent, or removable shelves.~~

~~—(e) The total inside height of the car shall not exceed 4 feet.~~

~~—(f) Cars shall be provided with a platform. The platform floor may be made hinged or removable or may be omitted in nonresidential buildings, subject to the approval of the enforcing authority.~~

~~—(g) Car doors or gates equipped with electric contacts shall be provided on all dumbwaiters.//~~

R 408.8631 **Rescinded.**//Car safeties.

~~—Rule 631. Car safeties shall be installed if they are determined by the department to be necessary for safe operation. This rule modifies rule 301.8 of the standard.//~~

R 408.8632a **Rescinded.**//Furnace butt welded pipe prohibited.

~~—Rule 632a. Furnace butt welded pipe shall not be used.//~~

R 408.8634 **Rescinded.**//Pipe supports and guards.

~~Rule 634. Piping shall be supported to eliminate undue stress at joints and fittings, particularly at any section of the line subject to vibration. Exposed portions of supply piping directly below the space between the hoistway and car sill in the elevator pit shall be protected with an approved type of guard.//~~

R 408.8636a **Rescinded.**//Cylinder protection.

~~Rule 636a. An outer cylinder casing is required on a new hydraulic elevator or where a cylinder is being replaced. The steel casing shall have a wall thickness that is not less than 3/8 of an inch. An expandable type concrete plug shall be poured in the bottom of a casing or a welded plate closer shall be provided and water removed. Dry nonconductive material, if needed, shall be provided between a cylinder and its casing to secure the position of the cylinder. This rule modifies rule 302.3h of the standard.//~~

R 408.8638 **Rescinded.**//Shutoff valves; gage snaps; underground piping; tags.

~~Rule 638. (1) A shutoff valve shall be provided on a new or modernized hydraulic elevator and shall be installed in the cylinder supply line within the elevator machine room. Where the hoistway is remotely located from the machine room, a shutoff valve shall also be provided in the elevator pit.~~

~~(2) A new hydraulic machine shall be provided with the necessary permanent pressure gage snap on fittings or permanent gages to allow pressure readings at each pump for checking operating pressures.~~

~~(3) Underground piping in connection with a new hydraulic elevator is prohibited. When a cylinder is replaced on an existing hydraulic elevator, the corresponding piping, if underground, is prohibited unless approved by the director of labor.~~

~~(4) Tags provided by the department shall be installed on new or replaced exposed hydraulic piping at intervals of not more than 10 feet. A tag provided by the department shall be attached to the car of a new or modernized hydraulic elevator, indicating the date of the installation and confirming that the hydraulic piping complies with these rules.//~~

R 408.8639 **Rescinded.**//Three year inspection and test requirements.

~~Rule 639. Rules 1005.1, 1005.2, 1005.2a, and 1005.2b of the ASME A17.1 code are amended to read as follows:~~

~~1005.1. (1) Cylinders shall be tested at intervals of not more than 36 months.~~

~~1005.2.(2) Three year inspection and test requirements.~~

~~1005.2a. (a) The relief valve setting shall be in compliance with the applicable requirements. It shall be resealed if the relief valve setting is altered or if the seal is broken (Rule 303.4b of the ASME A17.1 code).~~

~~1005.2b. (b) Test the relief valve setting by first inching the empty car upward to engage the plunger stop ring or to engage other suitable blocking provided and then apply pressure from the pump to check the setting.~~

~~Procedures for set test are as follows:~~

~~(a) Put rated load in the car and locate it at any convenient level.~~

~~(b) Open the disconnect switch and locate the elevation of the platform with respect to a convenient reference.~~

~~(c) For cylinders that are not completely exposed, after not less than 2 hours, note the position of the platform with respect to the chosen reference. For cylinders that are~~

completely exposed, after not less than 30 minutes, note the position of the platform with respect to the chosen reference. A change in the car position during a cylinder test that cannot be accounted for by visible oil leakage or temperature change of the oil indicates a failure of some type requiring further inspections, tests, or repairs. An accessible written record of all oil levels and all oil added shall be maintained in the machine room.//

R 408.8639b **Rescinded.**//Machine room entrance; location.

~~–Rule 639b. Rule 300.2a of the ASME A17.1 code is amended to read as follows:~~

~~–300.2a. The entrance to the machine room shall be not more than 25 feet, walking, from a hoistway door.//~~

R 408.8641 **Rescinded.**//Enclosure of hoistways.

~~–Rule 641. A hoistway shall be solidly enclosed, except for exterior windows, throughout its height without grillwork or openings other than for landings or access doors. An enclosure shall be of sufficient strength to support in true alignment the hoistway doors and gates and their locking equipment and shall conform to local laws and ordinances. This rule modifies rule 500.1 of the standard.//~~

R 408.8642 **Rescinded.**//Protection of spaces below hoistways.

~~–Rule 642. Where the space below the hoistway for an elevator car or counterweight is used for a passageway or is occupied by persons or, if unoccupied, is not secured against unauthorized access, the elevator shall be in compliance with both the following requirements:~~

~~–(a) The car and counterweight shall be provided with safeties in compliance with rule 503.1 of the ASME code and with spring buffers which are designed so that they will not be fully compressed when struck by the car with its rated load or by the counterweight traveling at 125% of the rated speed or a governor tripping speed where a governor operated safety is used.~~

~~–(b) Car and counterweight buffer supports shall be provided which are of sufficient strength to withstand, without failure, the impact resulting from buffer engagement at 125% of the rated speed or at governor tripping speed where a governor operated safety is used. This rule modifies rule 505.1 of the ASME code.//~~

R 408.8643 **Rescinded.**//Pits and buffers.

~~–Rule 643. A pit that is not less than 12 inches deep shall be provided at the bottom of a hoistway. Car and counterweight buffers that are in compliance with rule 201.1a of the ASME code shall be provided. This rule modifies section 505 of the ASME code.//~~

R 408.8644 **Rescinded.**//Hoisting ropes outside hoistways.

~~–Rule 644. Hoisting ropes located outside a hoistway shall be fully protected with a solid enclosure.//~~

R 408.8648 **Rescinded.**//Stopping devices.

~~–Rule 648. Rule 507.1 of the ASME code is amended to read as follows:~~

~~–507.1. Upper and lower normal terminal stopping devices operated by the car shall be provided and shall be set to stop the car at or near the upper and lower terminal landings.~~

~~Upper and lower final terminal stopping devices operated by the car shall also be provided and shall be set to stop the car before it strikes the overhead or pit bottom. If the driving machine is of the winding drum or sprocket chain suspension type, then a final terminal stopping device shall also be provided on, and operated by, the driving machine.//~~

R 408.8661 **Rescinded.**//~~Clearances between balustrades and steps.~~

~~—Rule 661. The clearance on either side of the steps between the steps and the adjacent skirt guard shall be not more than 3/16 of an inch, and the sum of the clearances on both sides shall be not more than 1/4 of an inch. This rule modifies rule 802.3e of the ASME code.//~~

R 408.8662 **Rescinded.**//~~Adjacent escalators; protection against access.~~

~~—Rule 662. If the angles of inclination of adjacent escalators are parallel, then the entrance to the area between balustrades at the upper and lower levels shall be fully protected against access.//~~

R 408.8664 **Rescinded.**//~~Access to interiors and pits.~~

~~—Rule 664. Reasonable access to the interior of an escalator shall be provided for inspection and maintenance. A permanent steel ladder shall be provided in a lower pit extending more than 48 inches in depth. (This rule modifies rule 806.3 of the standard.)//~~

R 408.8671 **Rescinded.**//~~Acceptance inspection and tests.~~

~~—Rule 671. All parts of the installation shall be inspected for conformity with the requirements of the applicable code rules of part X of the standard. The American standard practice for the inspection of elevators, inspectors' manual, ANSI-1988, A17.2a-1989, a copy of which is on file in the Lansing office of the department of labor and is available for public inspection, is recommended as a guide in making the inspection. Balance load and maximum normal speeds with maximum rated load and no load shall be determined and recorded on forms furnished by the department. This rule modifies rule 1003.2 of the standard.//~~

R 408.8681 **Rescinded.**//~~Phase I emergency recall operation.~~

~~—Rule 681. Rule 211.3a(1) of the ASME code is amended to read as follows:~~

~~—211.3a(1). All cars controlled by this switch that are on automatic service shall return nonstop to the designated level and power-operated doors shall open and remain open.~~

~~—On cars that have 2 entrances, if both entrances can be opened at the designated level, then the doors that serve the lobby where the 3 position phase I switch is located shall open and remain open. The rear door of the elevator shall remain closed. The key shall not be removable in the "BYPASS" position. The same key shall operate phase II in the car.//~~

R 408.8682 **Rescinded.**//~~Smoke detectors.~~

~~—Rule 682. Rule 211.3b(4) of the ASME code is amended to read as follows:~~

~~211.3b(4). Phase I operation, when initiated by a smoke detector, shall be maintained until cancelled by moving the phase I switch to the "BYPASS" position (see also rule 211.3a(10) of the ASME code).//~~

R 408.8683 **Rescinded.**//Maintenance of fire fighters' service.

~~Rule 683. Rule 1206.7 of the ASME A17.1 code is amended to read as follows:~~

~~1206.7. All elevators provided with fire fighters' service shall be subjected quarterly to phase I recall and a minimum of 1 floor operation on phase II to ensure that the system is maintained in proper operating order. An accessible written record of test results shall be maintained in the machine room.//~~

R 408.8690 **Rescinded.**//Scope.

~~Rule 690. This subpart applies to alterations, repairs, and replacement of parts on electric and hydraulic elevators.//~~

R 408.8691 **Rescinded.**//Major alterations.

~~Rule 691. Rule 1001.2 of the ASME A17.1 code is amended to read as follows:~~

~~//1001.2. (1) All of the following alterations shall be considered major alterations:~~

<u>Item</u>	<u>Electric Elevators</u>	<u>Hydraulic Elevators</u>
(a) Rated load, increase in	1202.8d	1203.2k.
(b) Car, increase in dead weight of	1202.4b	1203.2m.
(c) Travel, increase or decrease in	1202.10a	1203.4a.
(d) Operation, change in type of	1202.12f	1203.8g.
(e) Suspension ropes, change in size, number, or material	R 408.8691a.	
(f) Guide rails, change in type or size	1202.1	1203.2a.
(g) Car or counterweight safety, or overspeed governor replacement, change in type or addition of	1202.6	1203.2f. 1202.7.
(h) Freight elevator permitted to carry passengers	1202.8c	1203.2j.
(i) Freight elevator changed to passenger service	1202.8a	1203.2h.
(j) Power supply, change in	1202.12c	1203.8d.
(k) Driving machine, replacement	1202.9a	1203.3a.
(l) Replacement of an existing controller by a new controller	1202.12d	1203.8e.
(m) Driving machine brake, replacement	1202.9a	1203.3.
(n) Hoistway entrance or any part thereof, except for entrance hardware, replacement of	1201.10	1203.1j.
(o) Hoistway door locking device	1201.11	1203.1k.

(p) Hoistway access switches, addition of	1201.11d	1203.1k.
(q) Operating device, top of car, addition of	1202.12a	1203.8a.
(r) Door, power operation of, addition of	1201.12	1203.1m.
(s) Rope equalizer, addition of	1202.14c	1203.9c.
(t) Rope fastening device, auxiliary, addition of	1202.14d	1202.14d.
(u) Car leveling or truck zoning device, addition of	1202.12b	1203.8b.
(v) Roller guide shoe, addition of	1202.4a	1202.4.
(w) Pumping unit, replacement of		1203.3e.
(x) Rated speed, increase in	1202.10b	1203.4a.
(y) Control, change in type of	1202.12e	1203.8f.
(z) Sheave, driving machine, replacement of	1202.9a.	
(aa) Car enclosure, alteration of	1202.5	1203.2e.
(bb) Car platform, alteration of	1202.4a	1203.2d.
(cc) Car safety, replacement of	1202.6	1203.2f.
(dd) Check Valve, replacement of		1203.5.
(ee) Valves, supply piping and fittings, replacement of		1203.5.
(ff) Counterweight, alteration of		1202.3.
(gg) Change in location of driving machine	1202.9b	1203.3e.
(hh) Emergency operation, addition or alteration of	1202.13	1203.8h.
(ii) Increase in working pressure		1203.3d.
(jj) Reopening device for power operated car doors or gates, addition or change in type	112.5	112.5.

Escalators

(kk) Escalator step chains, replacement of	R 408.8692.
(ll) Escalator skirt switches, addition of	R 408.8693.
(mm) Escalator step wheel track, replacement of	R 408.8694.

~~(2) The alterations shall be in compliance with the applicable requirements of ASME code. A permit shall be obtained and the elevator shall not be placed into service until it has been inspected and tested in the presence of a general inspector, except as provided in section 15 of the act.//~~

R 408.8691a **Rescinded.**//Change in suspension ropes:

~~Rule 691a. Rule 1203.9a of the ASME code is amended to read as follows:~~

~~1203.9a. If the type of fastening, material, grade, number, or diameter of ropes is changed, then the new ropes and their fastenings shall be in compliance with the requirements of sections 212 and 307 of the ASME code.~~

~~If existing sheaves are retained using ropes different from those originally specified, then the original elevator manufacturer or a licensed professional engineer shall certify the sheave material to be satisfactory for the revised application.//~~

R 408.8691b **Rescinded.**//Car enclosure alterations.

~~Rule 691b. Rule 1202.5 of the ASME A17.1 code is amended to read as follows:
1202.5. All materials, other than metal or glass, which are used in passenger car enclosure walls and ceilings, and which are not tested in their end use configuration shall be tested individually pursuant to ASTM E 84, and the results shall be in compliance with a class A rating, that has a flame spread of 0–25 and smoke development of 0–450. The floor covering, underlayment, and adhesive shall have a critical radiant flux of not less than 0.45 W/cm². Napped, tufted, woven, looped, and similar materials applied to car enclosure walls shall be in compliance with the requirements of section 1104 of the ASME code.//~~

R 408.8692 **Rescinded.**//Escalator step chains; replacement.

~~Rule 692. Where the escalator step chains are replaced, they shall conform to rules 802.10 and 802.11 of the standard.//~~

R 408.8693 **Rescinded.**//Escalator skirt switches; addition.

~~Rule 693. Where escalator skirt switches are added, they shall conform to rule 805.1h of the standard.//~~

R 408.8694 **Rescinded.**//Escalator step wheel tracks; replacement.

~~Rule 694. Where escalator step wheel tracks are replaced, they shall conform to rule 802.8 of the standard.//~~

R 408.8695 **Rescinded.**//Addition of hoistway door locking devices or car door or gate electric contacts; replacement of hoistway door locking devices.

~~Rule 695. Where the alteration consists of the addition of hoistway door interlocks, hoistway door combination mechanical locks and electric contacts, or car door or gate electric contacts or the replacement of any hoistway door interlock with a different type of interlock or of any hoistway door combination mechanical lock and electric contact with a different type of combination mechanical lock and electric contact, the added or replaced parts shall conform to the applicable requirements of rules 111.1 to 111.11 of the standard and the driving machine shall be equipped with an electrically released brake.//~~